FORMULAS IN GEARING

BROWN & SHARPE MFG. CO.
PROVIDENCE, R. I., U. S. A.

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IN

GEARING.

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WITH PRACTICAL SUGGESTIONS.

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Preface.

This book deals with the subject of Gearing essentially from the draughtsman's standpoint.

Its aim is to condense as much as possible the solution of all problems in gearing which in the ordinary practice may be met with, to the exclusion of problems dealing with transmission of power and strength of gearing.

The simplest and briefest being the symbolical expression, it has, whenever available, been resorted to. The mathematics employed are of a simple kind, and will present no difficulty to any one familiar with ordinary Algebra and the elements of Trigonometry.

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FORMULAS IN GEARING.

CHAPTER I.

SYSTEMS OF GEARING.

There are in common use two systems of gearing, viz.: the involute and the epicycloidal.

In the involute system the outlines of the working parts of a tooth are single curves, which may be traced by a point in a flexible, inextensible cord being unwound from a circular disk the circumference of which is called the *base circle*, the disk being concentric with the pitch circle of the gear.

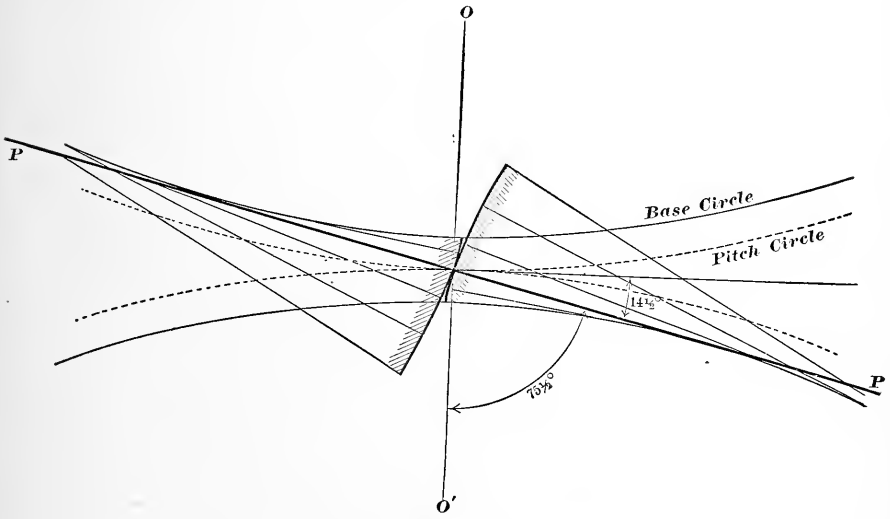


Fig. 1.

In *Fig. 1* the two base circles are represented as tangent to the line P P. This line (P P) is variously called "the line of pressure," "the line of contact," or "the line of action."

In our practice this is drawn so as to make with a normal to the centre line (O O′) 14½°, or with the centre line 75½°.

The rack of this system has teeth with straight sides, the two sides of a tooth making, together, an angle of 29° (twice 14½°).

This applies to gears having 30 teeth or more. For gears having less than 30 teeth special rules are followed, which are explained in our "Practical Treatise on Gearing."

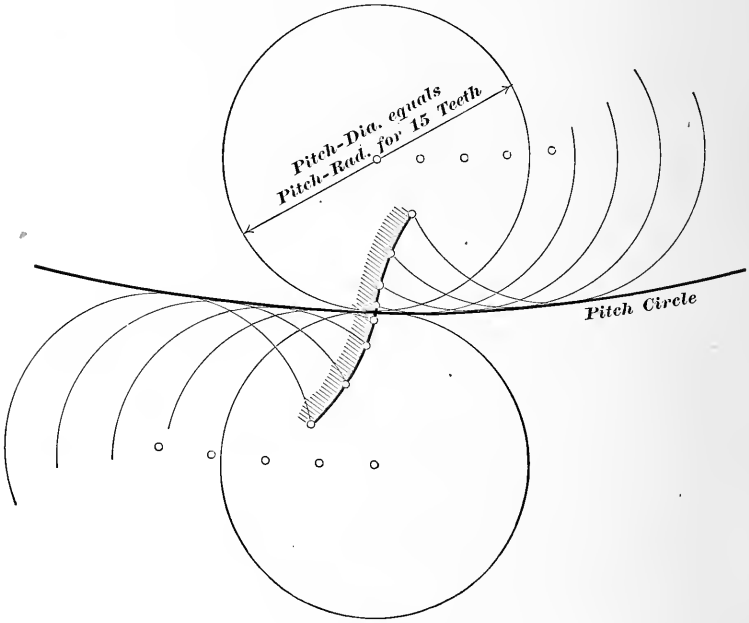


Fig. 2.

In epicycloidal, or double-curve teeth, the formation of the curve changes at the pitch circle. The outline of the faces of epicycloidal teeth may be traced by a point in a circle rolling on the *outside* of pitch circle of a gear, and the flanks by a point in a circle rolling on the *inside* of the pitch circle. The faces of one gear must be traced by the same circle that traces the flanks of the engaging gear.

In our practice the diameter of the rolling or describing circle is equal to the radius of a 15-tooth gear of the pitch required; this is the base of the system. The same describing circle being used for all gears of the same pitch.

The teeth of the rack of this system have double curves, which may be traced by the base circle rolling alternately on each side of the pitch line.

An advantage of the involute over the epicycloidal tooth is, that in action gears having involute teeth may be separated a little from their normal positions without interfering with the angular velocity, which is not possible in any other kind of tooth.

The obliquity of action is sometimes urged as an objection to involute teeth, but a full consideration of the subject will show that the importance of this has been greatly over-estimated.

The tooth dimensions for both the involute and epicycloidal gears may be calculated from the formulas in Chapter II.

CHAPTER II.

SPUR GEARING.

Two spur gears in action are comparable to two corresponding plain rollers whose surfaces are in contact, these surfaces representing the pitch circles of the gears.

Pitch of Gears.

For convenience of expression the pitch of gears may be stated as follows:

Circular pitch is the distance from the centre of one tooth to the centre of the next tooth, measured on the pitch line.

Diametral pitch is the number of teeth in a gear per inch of pitch diameter. That is, a gear that has, say, six teeth for each inch in pitch diameter is six diametral pitch, or, as the expression is universally abbreviated, it is "six pitch." This is by far the most convenient way of expressing the relation of diameter to number of teeth.

Module is the pitch diameter of a gear divided by the number of teeth.

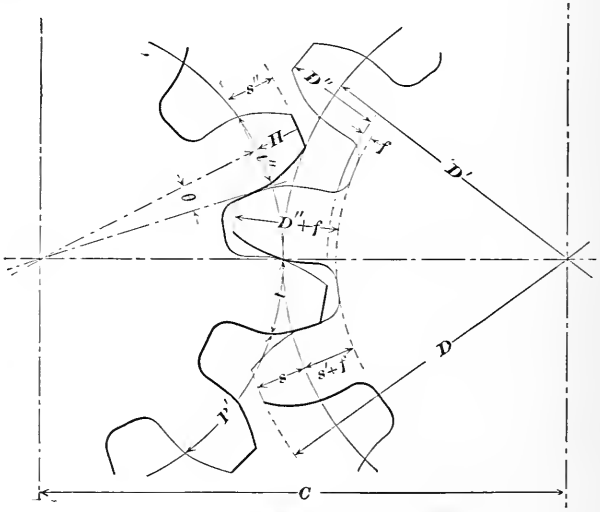


Fig. 3.

FORMULAS.

N = number of teeth.
s = addendum and module.
t = thickness of tooth on pitch line.
t'' = chordal thickness of tooth.
f = clearance at bottom of tooth.
D'' = working depth of tooth.
$D''+f$ = whole depth of tooth.
D' = pitch diameter.
D = outside diameter.
P' = circular pitch.
P = diametral pitch.
H = height of arc.
s'' = distance from chord to top of tooth.
c = centre distance.
θ = ¼ the angle subtended by circular pitch.

$$P = \frac{N+2}{D} = \frac{\pi}{P'}$$

$$P' = \frac{\pi}{P} = d\,\pi\,\frac{\theta}{90^\circ} = \frac{D'\,\pi}{N}$$

$$s = \frac{1}{P} = \frac{P'}{\pi} = .3183\ P' = \frac{D'}{N} = \frac{D}{N+2}$$

$$t = \frac{P'}{2} = \frac{\pi}{2P}$$

$$f = \frac{t}{10}$$

$$s+f = \frac{1}{P}\left(1+\frac{\pi}{20}\right) = .3683\ P'$$

$$D'' = 2\,s = \frac{2}{P}$$

$$D''+f = \frac{2.157}{P} = .6866\ P'$$

$$D' = \frac{N}{P} = \frac{N\,P'}{\pi}$$

$$D = D' + 2\,s = \frac{N+2}{P}$$

$$\theta = \frac{90^\circ}{N} \qquad H = \frac{D'(1-\cos\theta)}{2}$$

$$t'' = D'\sin\theta \qquad s'' = s + H$$

CHAPTER III.

BEVEL GEARS—AXES AT RIGHT ANGLES.

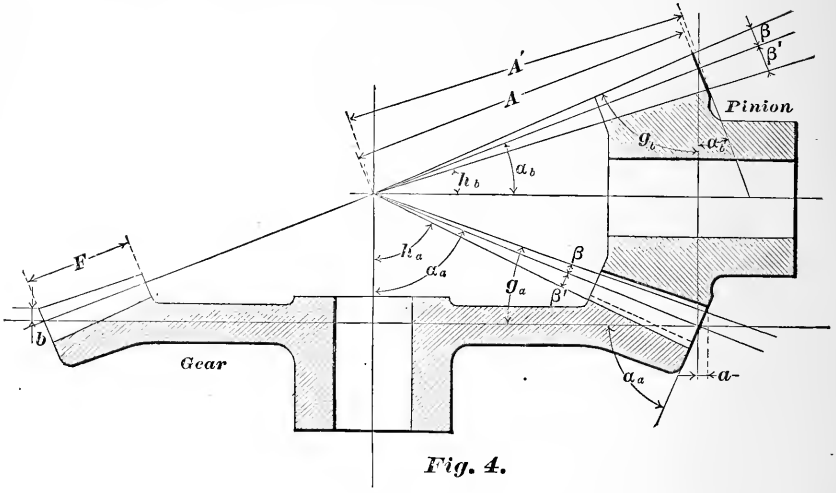


Fig. 4.

FORMULAS.

$N_a =$ } Number of teeth { gear.
$N_b =$ } { pinion.

$P =$ diametral pitch. $\quad P' =$ circular pitch.

$\alpha_a =$ } centre angle = angle of edge { gear.
$\alpha_b =$ } or pitch angle. { pinion.

$\beta =$ angle of top. $\quad \beta' =$ angle of bottom.

$g_a =$ } angle of face { gear.
$g_b =$ } { pinion.

$h_a =$ } cutting angle { gear.
$h_b =$ } { pinion.

$A =$ apex distance from pitch circle.

$A' =$ apex distance from large bottom of tooth.

$D' =$ pitch diameter. $\quad D =$ outside diameter.

$s =$ addendum and module.

$t =$ thickness of tooth at pitch line.

$f =$ clearance at bottom of tooth.

$D'' =$ working depth of tooth.

$D'' + f =$ whole depth of tooth. $\quad 2a =$ diameter increment.

$b =$ distance from top of tooth to plane of pitch circle.

$F =$ width of face.

$$\tan \alpha_a = \frac{N_a}{N_b}; \quad \tan \alpha_b = \frac{N_b}{N_a};$$

$$\tan \beta = \frac{2 \sin \alpha}{N}; \text{ or } \quad \tan \beta = \frac{s}{A}.$$

$$\tan \beta' = \frac{\sin \alpha \left(2 + \frac{\pi}{10}\right)}{N} = \frac{2.314 \sin \alpha}{N}; \quad \tan \beta' = \frac{s + f}{A};$$

$g_a = 90° - (\alpha_a + \beta)$; $g_b = 90° - (\alpha_b + \beta)$

$h = \alpha - \beta'$ (*See page 41.*)

$$A = \sqrt{\left(\frac{N_a}{2P}\right)^2 + \left(\frac{N_b}{2P}\right)^2}$$

$$A = \frac{N}{2 P \sin \alpha}$$

$$A' = \frac{A}{\cos \beta'} \qquad A' = \frac{N}{2 P \sin \alpha \cos \beta'}$$

$$A = \frac{\frac{1}{2} D}{\sin (\alpha + \beta)} \cos \beta$$

$$P = \frac{N}{2 A \sin \alpha}$$

$$D' = \frac{N}{P} \text{ or } = \frac{N P'}{\pi} \qquad D = D' + 2a$$

$2a = 2 s \cos \alpha$ (*For tables see pages 70 to 73.*)

$b = a \tan \alpha$ { a for gear $= b$ for pinion; a for pinion $= b$ for gear

$$P = \frac{\pi}{P'} \qquad P' = \frac{\pi}{P}$$

$$s = \frac{1}{P} = \frac{P'}{\pi} = .3183 P' = A \tan \beta$$

$$s + f = .3685 P' = A \tan \beta' = \frac{1}{P}\left(1 + \frac{\pi}{20}\right)$$

$$D'' = 2 s$$

$$t = \frac{P'}{2} = \frac{\pi}{2P} \qquad f = \frac{t}{10}$$

$$*F = \frac{A}{3} \text{ or } *F = \frac{5 P'}{2}$$

NOTE.—Formulas containing notations without the designating letters a and b apply equally to either gear or pinion. If wanted for one or the other, the respective letters are simply attached.

*The formula giving the lesser value of F should always be used.

BEVEL GEARS WITH AXES AT ANY ANGLE.

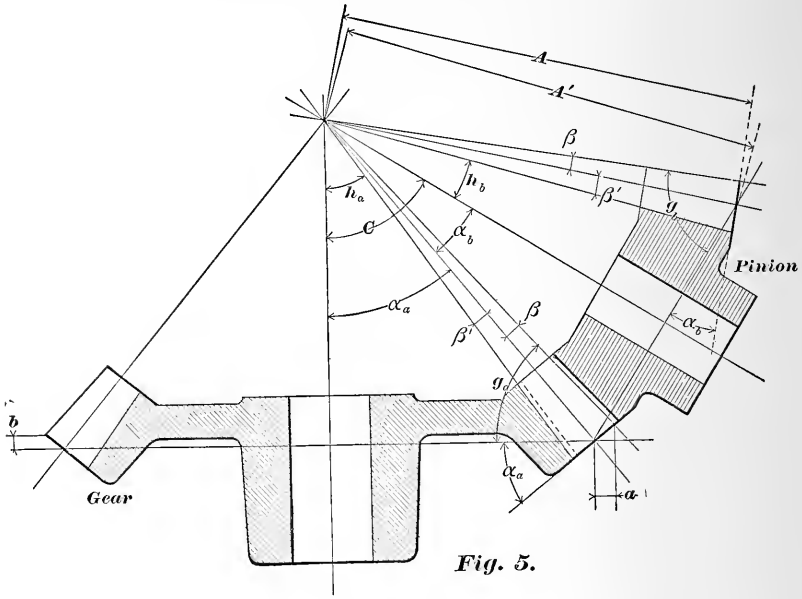


Fig. 5.

FORMULAS.

C = angle formed by axes of gears.

N_a, N_b = number of teeth { gear. / pinion.

P = diametral pitch. P′ = circular pitch.

α_a, α_b = angle of edge = pitch angle { gear. / pinion.

β = angle of top. β' = angle of bottom.

g_a, g_b = angle of face { gear. / pinion.

h_a, h_b = cutting angle { gear. / pinion.

A = apex distance from pitch circle.

A′ = apex distance from large bottom of tooth.

D′ = pitch diameter. D = outside diameter.

2 a = diameter increment.

b = distance from top of tooth to plane of pitch circle.

NOTE.—The formulas for tooth parts as given on page 13 apply equally to these cases.

$$\tan \alpha_a = \frac{\sin C}{\frac{N_b}{N_a} + \cos C}; \text{ or } \cot \alpha_a = \frac{N_b}{N_a \sin C} + \cot C$$

$$\tan \alpha_b = \frac{\sin C}{\frac{N_a}{N_b} + \cos C}; \text{ or } \cot \alpha_b = \frac{N_a}{N_b \sin C} + \cot C$$

NOTE.—The above formulas are correct only for values of C less than 90°. If C is greater than 90°, consult page 19.

$$\tan \beta = \frac{2 \sin \alpha}{N}; \quad \text{or } \tan \beta = \frac{s}{A};$$

$$\tan \beta' = \frac{\sin \alpha \left(2 + \frac{\pi}{10}\right)}{N} = \frac{2.314 \sin \alpha}{N}; \quad \tan \beta' = \frac{s+f}{A};$$

$g_a = 90° - (\alpha_a + \beta)$ for Cases I and II.

$g_a = \beta$, for Case III.

$g_a = 90° - (\alpha_a - \beta)$ for Case IV.

$g_b = 90° - (\alpha_b + \beta)$

$h = \alpha - \beta'$ (*See page 41.*)

$$A = \frac{N}{2 P \sin \alpha}$$

$$A' = \frac{A}{\cos \beta'}$$

$$D' = \frac{N}{P} \text{ or } = \frac{N P'}{\pi}$$

$D = D' + 2 a$ { for Cases I and II, and pinions in Cases III and IV.

$D = D'$, for gear in Case III.

$D = D' - 2 a$, for gear in Case IV.

$2 a = 2 s \cos \alpha$

$b = s \sin \alpha$

NOTE.—Formulas containing notations without the designating letters a and b apply equally to either gear or pinion. If wanted for one or the other, the respective letters are simply attached.

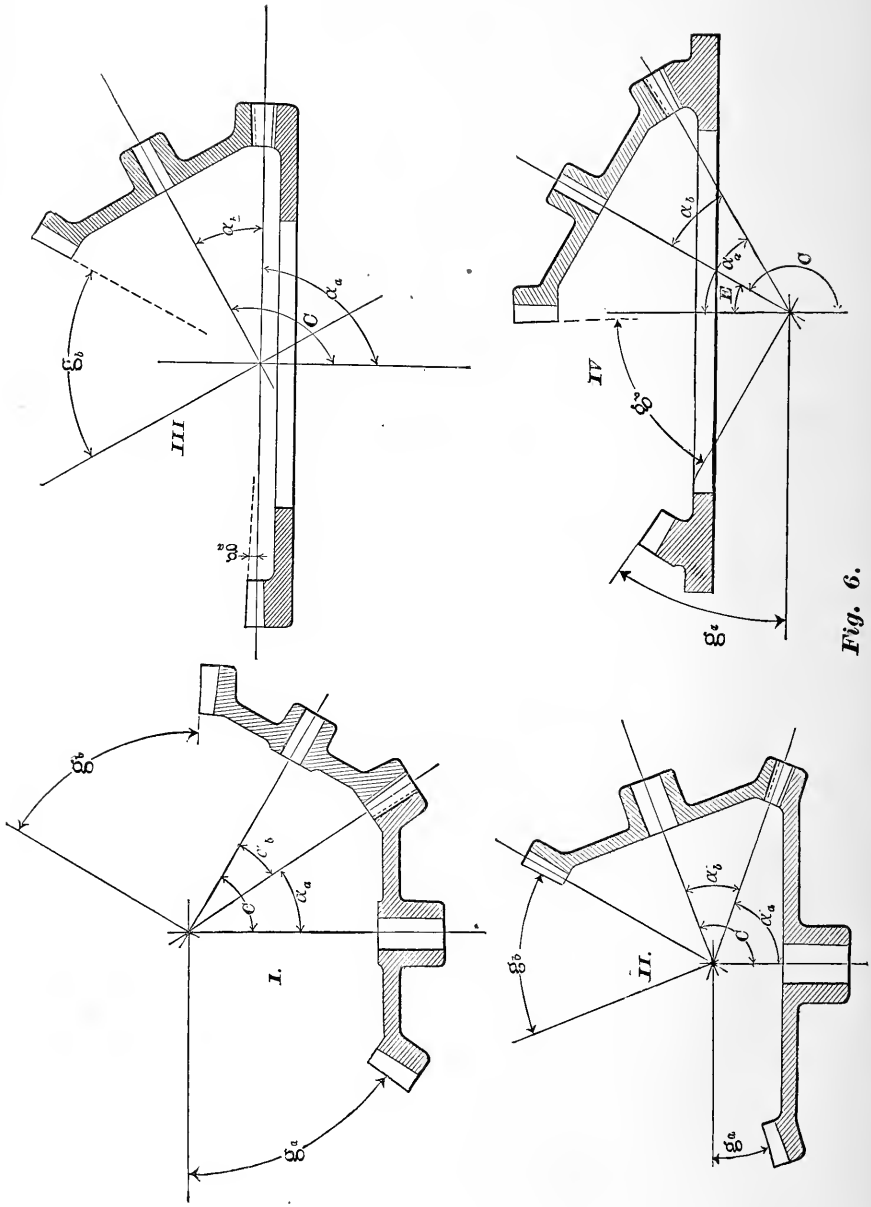


Fig. 6.

The formulas given for α_a and α_b (when C, N_a and N_b are known) undergo some modifications for values of C greater than 90°.

For bevel gears at any angle but 90° we may distinguish four cases; C, N_a, N_b being given.

I. Case. See pages 16 and 17.

II. Case. C is greater than 90°.

$$\tan \alpha_a = \frac{\sin (180-C)}{\frac{N_b}{N_a} - \cos (180-C)}; \quad \tan \alpha_b = \frac{\sin (180-C)}{\frac{N_a}{N_b} - \cos (180-C)}$$

III. Case. $\alpha_a = 90°$; $\alpha_b = C - 90°$

IV. Case.

$$\tan \alpha_a = \frac{\sin E}{\cos E - \frac{N_b}{N_a}}; \quad \tan \alpha_b = \frac{\sin E}{\frac{N_a}{N_b} - \cos E}$$

For an example to apply to Case III., the following condition must be fulfilled:

$$N_a \sin (C - 90°) = N_b$$

To distinguish whether a given example belongs to Case II. or Case IV., we are guided by the following condition:

Is: $N_a \sin (C - 90°)$ { *smaller* than N_b, we have Case II. / *larger* than N_b, we have Case IV.

UNDERCUT IN BEVEL GEARS.

By undercut in gears is understood a special formation of the tooth, which may be explained by saying that the elements of the tooth below the pitch line are nearer the centre line of the tooth than those on the pitch line. Such a tooth outline is to be found only in gears with few teeth. In a pair of bevel gears where the pinion is low-numbered and the ratio high, we are apt to have undercut. For a pair of running gears this condition presents no objection. Should, however, these gears be intended as patterns to cast from, they would be found useless, from the fact that they would not draw out of the sand. We have stated on page 10 (see Fig. 1) that the base of our involute system is the 14½° pressure angle.

If a pair of bevel gears with teeth constructed on this basis have undercut, we can nearly eliminate the undercut—and for the practical working this is quite sufficient—by taking as a basis for the construction of the tooth outline a pressure angle of 20°.

The question now is: When do we and when do we not have undercut? Let there be:

N = number of teeth in gear.
n = number of teeth in pinion.

$$\frac{n\sqrt{N^2 + n^2}}{N} = p$$

where we have undercut for p less than 30.

This formula is strictly correct for epicycloidal gears only. It is, however, used as a safe and efficient approximation for the involute system.

CHAPTER IV.

WORM AND WORM WHEEL.

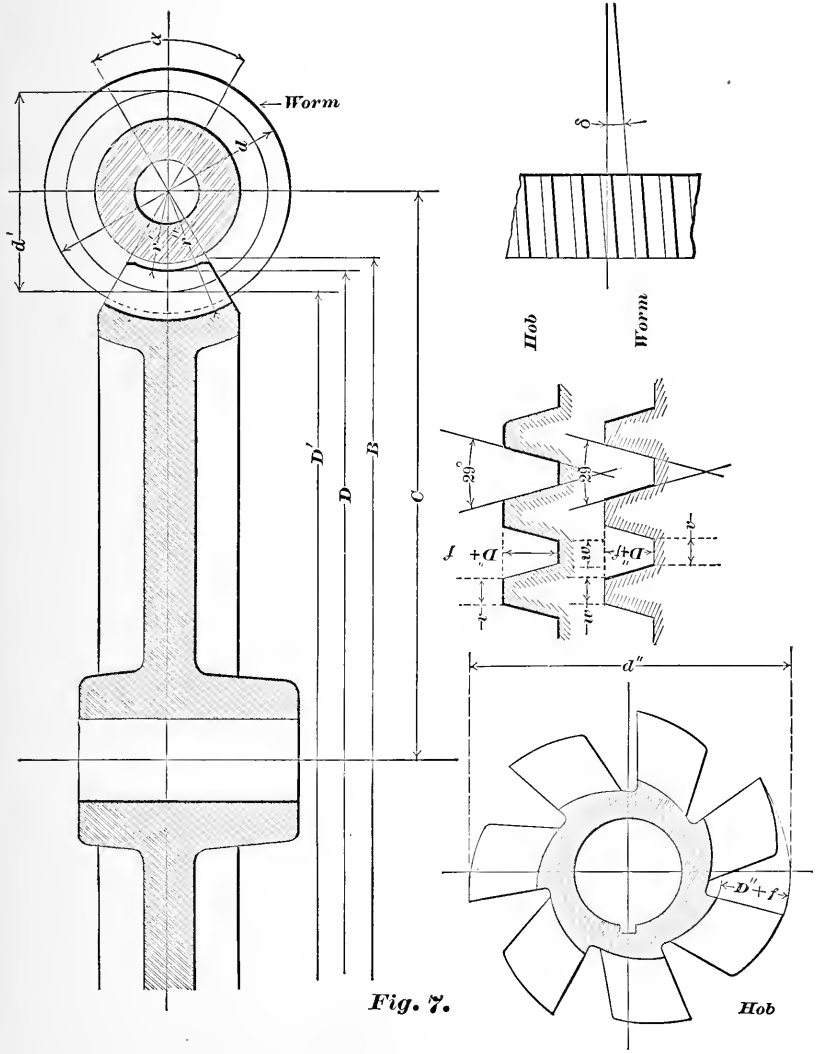


Fig. 7.

FORMULAS.

$L =$ lead of worm.
$N =$ number of teeth in gear.
$m =$ turns per inch of worm.
$d =$ diameter of worm.
$d' =$ pitch diameter of worm.
$d'' =$ diameter of hob.
$D =$ throat diameter.
$D' =$ pitch diameter of worm wheel.
$B =$ blank diameter (to sharp corners).
$C =$ distance between centres.
$P =$ diametral pitch.
$P' =$ circular pitch for worm wheels or axial pitch for worms.
r', r'' } See figure 7.
$s =$ addendum and module.
$t =$ thickness of tooth at pitch line.
$t^n =$ normal thickness of tooth.
$f =$ clearance at bottom of tooth.
$D'' =$ working depth of tooth.
$D'' + f =$ whole depth of tooth.
$b =$ pitch circumference of worm.
$v =$ width of worm thread tool at end.
$w =$ width of worm thread at top and width of hob tool at end.
$\delta =$ angle of tooth of worm wheel with its axis, or the angle of thread of worm with a line at right angles to its axis.

If the lead is for single, double, triple, etc., thread, then

$$L = P', 2P', 3P', \text{etc.}$$

In multiple threaded worms and their mating wheels, if the angle δ is more than 15° the tooth parts should be figured on the normal as for spiral gears. In using the formulas for spiral gears, it should be borne in mind that while P' is the axial pitch for worms it is the circular pitch for spiral gears.

$\alpha = 60°$ to $90°$

$L = \frac{1}{m}$

$P' = \frac{\pi\ T}{N + 2}$

$D' = \frac{N\ P'}{\pi} = \frac{N}{P}$

$D = \frac{N}{P} + 2\ s$

$b = \pi\ (d - 2s) = \pi\ d'$

$\tan \delta = \frac{L}{b}$ { Practical only when width of wheel on wheel pitch circle is not more than ⅔ pitch diameter of worm.

$t^n = t \cos \delta$

$r' = \frac{d}{2} - 2\ s$

$r'' = r' + D'' + f$

$C = \frac{D' + d}{2} - s = \frac{D' + d'}{2}$

$B = D + 2\left(r' - r' \cos \frac{\alpha}{2}\right)$ A measurement of sketch is generally sufficient.

$d'' = d + 2f$

$v = .31\ P'$

$w = .335\ P'$

NOTE.—The notations and formulas referring to tooth parts, given on page 13, for spur gears, apply to worm wheels and are here used.

NOTE.—Hob and worm should be marked, as per example:

4 turns per 1″ single .25 P′; .25 L.
2 turns per 1″ double .25 P′; .50 L.

UNDERCUT IN WORM WHEELS.

In worm wheels of less than 30 teeth the thread of the worm (when 29°) interferes with the flank of the gear tooth. Such a wheel finished with a hob will have its teeth undercut. To avoid this interference two methods may be employed.

First Method.—Make throat diameter of wheel

$$D = \cos^2 14\tfrac{1}{2}^\circ \frac{N}{P} + 4s = \frac{.937\ N}{P} + 4s$$

This formula increases the throat diameter, and consequently the centre distance. The amount of the increase can be found by comparing this value of D with the one as obtained by formula on page 23. To keep the original centre distance, the outside diameter of the worm must be reduced by the same amount the throat diameter is increased.

Second Method.—Without changing any of the dimensions we found by the formulas given on page 23, we can avoid the interference to be found in worm wheels of less than 30 teeth by simply increasing the angle of worm thread. We find the value of this angle by the following formula:

Let there be

2γ = angle of worm thread.

N = number of teeth in worm wheel.

$$\cos\gamma = \sqrt{1 - \frac{2}{N}}$$

From this formula we obtain the following values:

N	29	28	27	26	25	24	23	22	21	20
2γ	30¼	31	31½	32¼	32¾	33½	34¼	35	36	37

N	19	18	17	16	15	14	13	12
2γ	38	39	40	41½	42¾	44½	46¼	48

As this latter formula involves the making of new hobs in many cases, on account of change of angle, we prefer to reduce the diameter of worm as indicated by first method, if the distance of centres must be absolute.

CHAPTER V.

SPIRAL OR SCREW GEARING.

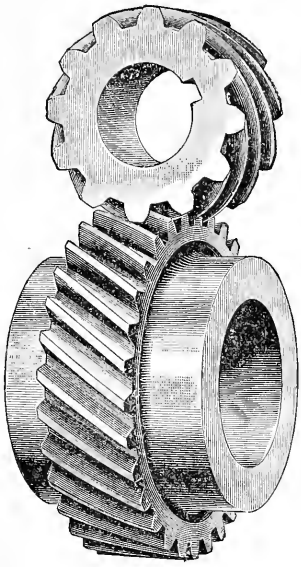


Fig. 8.

RIGHT HAND SPIRAL GEARS.

In spiral gearing the wheels have cylindrical pitch surfaces, but the teeth are not parallel to the axis. The line in which the pitch surface intersects the face of a tooth is part of a screw line, or helix, drawn at the pitch surface. A screw wheel may have one or any number of teeth. A one-toothed wheel corresponds to a one-threaded screw, a many-toothed wheel to a many-threaded screw. The axes may be placed at any angle.

Consider spiral gears with :

I. Axes parallel.
II. Axes at right angles.
III. Axes any angle.

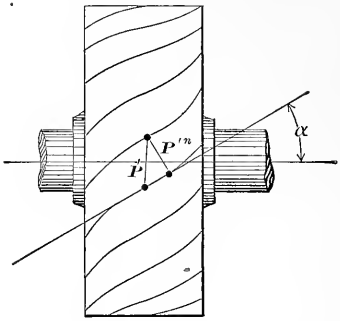


Fig. 9.
LEFT HAND SPIRAL GEAR.

Let there be:

$N_a = N_b =$ } number of teeth in gears { a / b

$C =$ centre distance.

$P' =$ circular pitch (circumferential not axial).

$P^n =$ normal diametral pitch.

$P'^n =$ normal circular pitch.

$\gamma =$ angle of axes.

$L_1 =$ exact lead of spiral on pitch surface.

$L_2 =$ approximate lead of spiral on pitch surface.

$T =$ number of teeth marked on cutter to be used when teeth are to be cut on milling machine.

$D' =$ pitch diameter.

$D =$ outside diameter.

$\alpha_a = \alpha_b =$ } angle of teeth with axis

$t =$ thickness of tooth.

$s =$ addendum and module.

$D'' + f =$ whole depth of tooth.

NOTE.—Letters *a* and *b* occurring at bottom of notations refer to gears *a* and *b*.

I.—AXES PARALLEL.

Gears of this class are called twisted gears. The angle of teeth with axes in both gears must be equal and the spirals run in opposite directions. The angles are generally chosen small (seldom over 20°) to avoid excessive end thrust. End thrust may, however, be entirely avoided by combining two pairs of wheels with right and left-hand obliquity. Gears of this class are known as Herringbone gears. They are comparatively noiseless running at high speed.

II.—Axes at Right Angles.

Here we must always have:

1. The teeth of same hand spiral;
2. The normal pitches equal in both gears; and
3. The sum of the angles of teeth with axes = 90°.

Choosing Angle of Teeth with Axes.

1. If in a pair of gears the ratio of the number of teeth is equal to the direct ratio of the diameters, *i. e.*, if the number of teeth in the two gears are to each other as their pitch diameters, then the angles of the spirals will be 45° and 45°; for, this condition being fulfilled, the circular pitches of the two gears must be alike, which is only possible with angles of 45°. In such a combination either gear may be the driver.

2. If the ratio of the diameters determined upon is larger or smaller than the ratio of the number of teeth, then the angles are:

$$\tan \alpha_a = \frac{D'_a N_b}{D'_b N_a} \qquad \tan \alpha_b = \frac{D'_b N_a}{D'_a N_b}$$

In such gears the velocity ratio is measured by the number of teeth, and not by the diameters.

3. Given N_a, N_b and C:

If P_a' is made = P_b', then we have case "1" and

$$P' = \frac{\pi C}{\frac{1}{2}(N_a + N_b)}$$

But if P_a' is assumed, then:

$$P_b' = \frac{C \pi - \frac{1}{2} N_a P_a'}{\frac{1}{2} N_b}$$

and

$$\tan \alpha_a = \frac{P_a'}{P_b'} \qquad \tan \alpha_b = \frac{P_b'}{P_a'}$$

The gear whose P′ or α is larger will ordinarily be the driver, on account of the greater obliquity of the teeth.

4. Given N_a, N_b and C or D′.

See case "7" under III., considering $\gamma = 90°$.

III.—Axis at any Angle (γ).

5. Given case "1," under II., then angles of spirals = $\frac{1}{2}\gamma$, for the same reason.

6. Analogous cases to "2" and "3," under II., may be worked out, when angles of axes = γ, but they have been

omitted, partly because the formulas are too cumbersome, and partly because they are to some extent covered by cases "5" and "7."

7. Given N_a, N_b and C, or one of the pitch diameters. We find the angles by a graphic method, which for all practical purposes is accurate enough ; $r\ o$ and $v\ o$ are the axes of gears forming angle γ (see diagram, Fig. 10.) On these axes we lay off lines $o\ r$ and $o\ v$ representing the ratio of the number of teeth (velocity ratio), so that $N_a : N_b : : r\ s : s\ v$, and

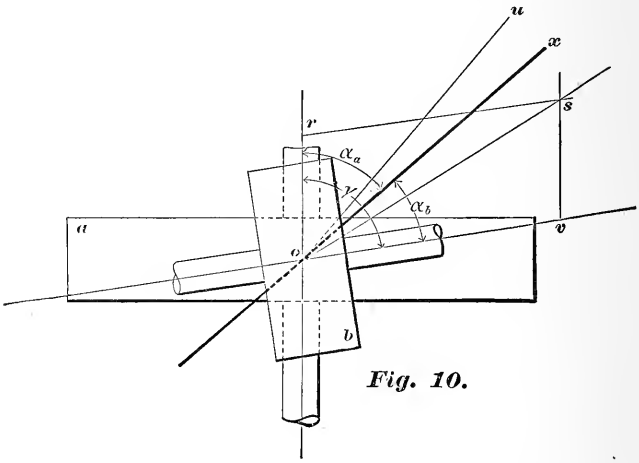


Fig. 10.

construct parallelogram $o\ r\ s\ v$. Then, according to McCord,* the angles formed by the tangent $s\ o$ in the pitch contact o with the axes of the gears insures *the least amount of sliding*. In bisecting angle γ by tangent $u\ o$ and using angles produced in this manner we *equally distribute the end thrust* on both shafts. Both methods have their advantages; to profit by both we select angles α_a and α_b, produced by tangent $o\ x$, bisecting angle $u\ o\ s$.

Thus we have when angles are found and C given,

$$P'_n = \frac{2\ C\ \pi \cos \alpha_a \cos \alpha_b}{N_a \cos \alpha_b + N_b \cos \alpha_a}$$

and when D'_a given

$$P'_n = \frac{D'_a\ \pi \cos \alpha_a}{N_a} \qquad \text{and}$$

$$D'_b = \frac{P'_n\ N_b}{\pi \cos \alpha_b}$$

*McCord, Kinematics, page 278.

General Formulas.

$$\gamma = \alpha_a + \alpha_b$$

$$P_a'^n = P_b'^n$$

$$D' = \frac{P' N}{\pi} \text{ or } = \frac{P'^n N}{\pi \cos \alpha}$$

$$D = D' + 2 s \quad \text{or} = D' + \frac{2}{P^n}$$

$$P' = \frac{D' \pi}{N} \quad \text{or} = \frac{P'^n}{\cos \alpha}$$

$$P'^n = P' \cos \alpha$$

$$P^n = \frac{\pi}{P'^n} \quad \text{(Pitch of cutter.)}$$

$$s = \frac{P'^n}{\pi} \quad \text{or} = \frac{1}{P^n}$$

$$t = \frac{P'^n}{2}$$

$$D'' + f = 2 s + \frac{t}{10}$$

$$T = \frac{N}{\cos^3 \alpha} \qquad \textit{(See Note 1.)}$$

$$L_1 = \frac{N P'}{\tan \alpha} \text{ or } \frac{N \pi}{P \tan \alpha} \text{ or for cases where axes are at right angles } \begin{cases} L_{1a} = N_a P'_b \\ L_{1b} = N_b P'_a \end{cases}$$

$$L_2 = \frac{10 W G_2}{S G_1} \qquad \textit{(See Note 2 and examples.)}$$

$$\begin{pmatrix} \cos 45^\circ = .70711 \\ \cos^3 45^\circ = .3535 \\ \tan 45^\circ = 1.000 \end{pmatrix}$$

Note 1.—Cutters of regular involute system.

Use No. 1 cutter for T from 135 up.		No. 5 cutter for T from 21 to 25	
" 2 " " " "	55 to 134	" 6 " " " "	17 to 20
" 3 " " " "	35 to 54	" 7 " " " "	14 to 16
" 4 " " " "	26 to 34	" 8 " " " "	12 to 13

Note 2.—Gears used on spiral head of milling machines made by Brown & Sharpe Mfg. Co.

W = number of teeth in gear on worm.
G_1 = " " 1st " stud.
G_2 = " " 2d " stud.
S = " " " screw.

Should a spiral head of different construction be used, the formula might not apply.

The following data are usually required in cutting spiral gears in a Universal Milling Machine, and it will be found convenient to arrange them in tabular form as follows:

	GEAR.	PINION.
No. of Teeth		
Pitch Diameter		
Outside Diameter		
Circular Pitch		
Angle of Teeth with Axis		
Normal Circular Pitch		
Pitch of Cutter		
Addendum s		
Thickness of Tooth t		
Whole Depth D″+f		
No. of Cutter		
Exact Lead of Spiral		
Approximate Lead of Spiral		
Gears on Milling Machine to Cut Spiral		
Gear on Worm		
1st Gear on Stud		
2nd Gear on Stud		
Gear on Screw		

If the exact lead L_1 can be obtained by the gears at hand, L_1 will equal L_2 and we shall have from the formula

$$L_2 = \frac{10\ W\ G_2}{S\ G_1}$$

$$\frac{L_1}{10} = \frac{W\ G_2}{S\ G_1}$$ (for B. & S. Milling Machine.)

Example I.

Required the gears for cutting a spiral of $2\frac{1}{2}''$ lead.

$\frac{2\frac{1}{2}}{10} = \frac{1}{4}$ factoring, in the most simple way, we have

$$\frac{1}{4} = \frac{1 \times 1}{2 \times 2} = \frac{1 \times 28}{56 \times 2} = \frac{32 \times 28}{56 \times 64} = \frac{W\ G_2}{S\ G_1}$$

Thus the gearing will be 32 T. on worm, 64 T. 1st on stud, 28 T. 2nd on stud, and 56 T. on screw.

Trying these gears on the Milling Machine we find that they cannot be used, and as we have no other regular gears in the ratio of 2 to 1 that can be used we must try, by factoring, to get such ratios for the two pairs of gears as to be able to use the gears at hand, bearing in mind that the combined ratio must be $\frac{1}{4}$.

$$\frac{1}{4} = \frac{18}{72} = \frac{3 \times 6}{9 \times 8} = \frac{24 \times 6}{9 \times 64} = \frac{24 \times 48}{72 \times 64}$$

These gears are at hand and the combination can be used on the machine, giving the exact lead of $2\frac{1}{2}''$.

Example II.

Required the gears for cutting a spiral of 8.639″ lead.

$8.639 = 8\frac{639}{1000}$; reducing, by continued fractions, to a smaller fraction of approximately the same value, as described on pages 50 and 51

639) 1000 (1
639
361) 639 (1
361
278) 361 (1
278
83) 278 (3
249
29) 83 (2
58
25) 29 (1
25
4) 25 (6
24
1) 4 (4
4

$$\begin{array}{cccccccc} 1 & 1 & 1 & 3 & 2 & 1 & 6 & 4 \\ \hline \frac{1}{1} & \frac{1}{2} & \frac{2}{3} & \frac{7}{11} & \frac{16}{25} & \frac{23}{36} & \frac{154}{241} & \frac{639}{1000} \end{array}$$

Selecting $\frac{16}{25}$ as an approximation near enough for our purpose, and in fact as near as we are likely to find gears for, we have for our lead $8\frac{16}{25}$. Applying the formula as in Example I.

$$\frac{8\frac{16}{25}}{10} = \frac{W\ G_2}{S\ G_1}$$

$$\frac{8\frac{16}{25}}{10} = \frac{216}{250} = \frac{108}{125} \text{ factoring we have}$$

$$\frac{9 \times 12}{25 \times 5} = \frac{9 \times 48}{100 \times 5} = \frac{72 \times 48}{100 \times 40} \text{ the gears required,}$$

these being regular gears furnished with the Milling Machine.

Proof:

$$\frac{72 \times 48 \times 10}{100 \times 40} = 8.640 = L_2$$
$$8.639 = L_1$$
$$.001'' \text{ error in lead.}$$

In shops where much work is done in milling spirals it is desirable to have a full set of gears for the milling machine, from the smallest to the largest numbers of teeth that can be used. This makes it possible, in most cases, to get closer approximations than could be otherwise obtained, and often saves a great deal of figuring.

When the use of continued fractions does not bring a close enough approximation, one method to secure a closer result is to add to or substract from the numerator and denominator of the fraction to be reduced, any numbers nearly in proportion to the given fraction, seeing that the numbers added or substracted are such as to make the fraction reducible to lower terms. By a little ingenuity and patience extremely close approximations can generally be reached in this way.

Take, as an illustration, the fraction in Example II.

$$\frac{8\frac{639}{1000}}{10} = \frac{8639}{10000}$$

Adding 9 to the numerator and 10 to the denominator, these

being in about the same ratio to each other as the numerator and denominator of the fraction, we have

$$\begin{array}{r} 8639+9 = \frac{8648}{10010} = \frac{4324}{5005} = \frac{47 \times 92}{55 \times 91} \\ 10000+10 = \end{array}$$

All of the gears in this case are special.

Applying the same proof as in Example II. we find that this train of gears will give a lead of 8.6393+, making an error of .0003″ in the lead.

No doubt a much closer approximation even than this could be obtained by further trial.

Another method is to multiply both terms of the fraction by some number which will make one term of the fraction easily reducible, and adding one to or subtracting it from the other term to make it possible to reduce that also.

There is an element of uncertainty in both these methods, as we never feel sure that we have obtained the best combination ; practical work, however, rarely requires accuracy beyond a point that can readily be reached.

The tables of prime numbers and factors, pages 116 to 149, will be found convenient in reducing and factoring fractions. These tables are condensed as much as possible and give all numbers from 1 to 10,200.

The table of leads, pages 154 to 171, gives all leads obtainable with the regular gears furnished with the Universal Milling Machines made by Brown & Sharpe Mfg. Co.

CHAPTER VI.

INTERNAL GEARING.

PART A.—INTERNAL SPUR GEARING.

A little consideration will show that a tooth of an internal or annular gear is the same as the space of a spur—external gear.

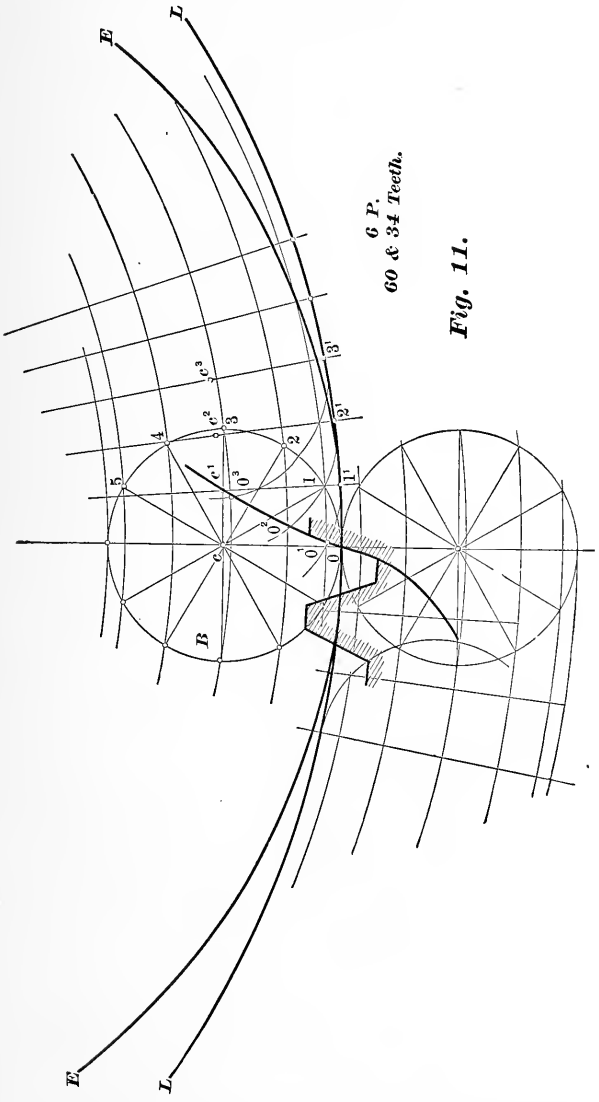
The epicycloidal form of tooth is preferable for internal gears, as there is less difficulty in overcoming the interferences. The involute form of tooth can be used by changing the pressure angle beyond the limit of interference. Special constructions are required when the difference between the number of teeth in gear and pinion is small.

In using the system of epicycloidal form of tooth in which the gear of 15 teeth has radial flanks, this difference must be at least 15 teeth, if the teeth have both faces and flanks. Gears fulfilling this condition present no difficulties. Their pitch diameters are found as in regular spur gears, and the inside diameter is equal to the pitch diameter, less twice the addendum.

If, however, this difference is less than 15, say 6, or 2, or 1, then we may construct the tooth outline (based on the epicycloidal system) in two different ways.

First Method.—To explain this method better, let us suppose the case as in Fig. 11, in which the difference between gear and pinion is more than 15 teeth. Here the point o of the describing circle B (the diameter of which in the best practice of the present day is equal to the pitch radius of a 15 tooth gear, of the same pitch as the gears in question) generates the cycloid o, o^1, o^2, o^3, etc., when rolling on pitch circle L L of gear, forming the face of tooth ; and when rolling on the outside of L L the flank of the tooth. In like manner is the face and flank of the pinion tooth produced by B rolling outside and inside of E E (pitch circle of pinion). A little study

of Fig. 11 (in which the face and flank of a gear tooth are produced) will show the describing circle B divided into 12



equal parts and circles laid through these points (1, 2, 3, etc.), concentric with L L. We now lay off on L L the distances 0–1, 1–2, 2–3, etc., of the circumference of B, and obtain points

1^1, 2^1, 3^1, etc. [Ordinarily it is sufficient to use the chord.] It will now readily be seen that B in rolling on L L will successively come in contact with 1^1, 2^1, 3^1, etc., *c* meanwhile moving to c^1, c^2, c^3, etc. (points on radii through 1^1, 2^1, 3^1, etc.), and the generating point o advancing to o^1, o^2, o^3, etc., being the intersections of B with c^1, c^2, c^3, etc., as centres and the circles laid through 1, 2, 3, etc. Points o, o^1, o^2, o^3, etc., connected with a curve give the face of the tooth; in like manner the flank is obtained.

In this manner the form of tooth is obtained, when the difference of teeth in gear and pinion is less than 15, with the exception that the diameter of describing circle B

$$= \tfrac{1}{2}\left(\frac{\mathrm{Na} - \mathrm{Nb}}{\mathrm{P}}\right)$$

where P = diametral pitch, Na and Nb number of teeth in gears.

The distances of the tooth above and below the pitch line as well as the thickness *t* are determined as in regular spur gears by the pitch, except when the difference in gear and pinion is very small, where we obtain a short tooth, as in Figs. 12 and 13. In such a case the height of tooth is arbitrary and only conditioned by the curve. In internal gears it is best to allow more clearance at bottom of tooth than in ordinary spur gears.

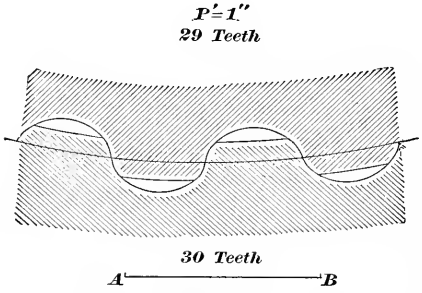


Fig. 12.

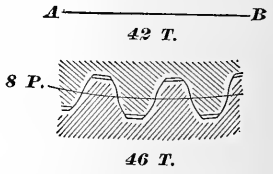


Fig. 13.

In a construction of this kind it is suggested to draw the tooth outline many times full size and reduce by photography. An equally multiplied line A B will help in reducing.

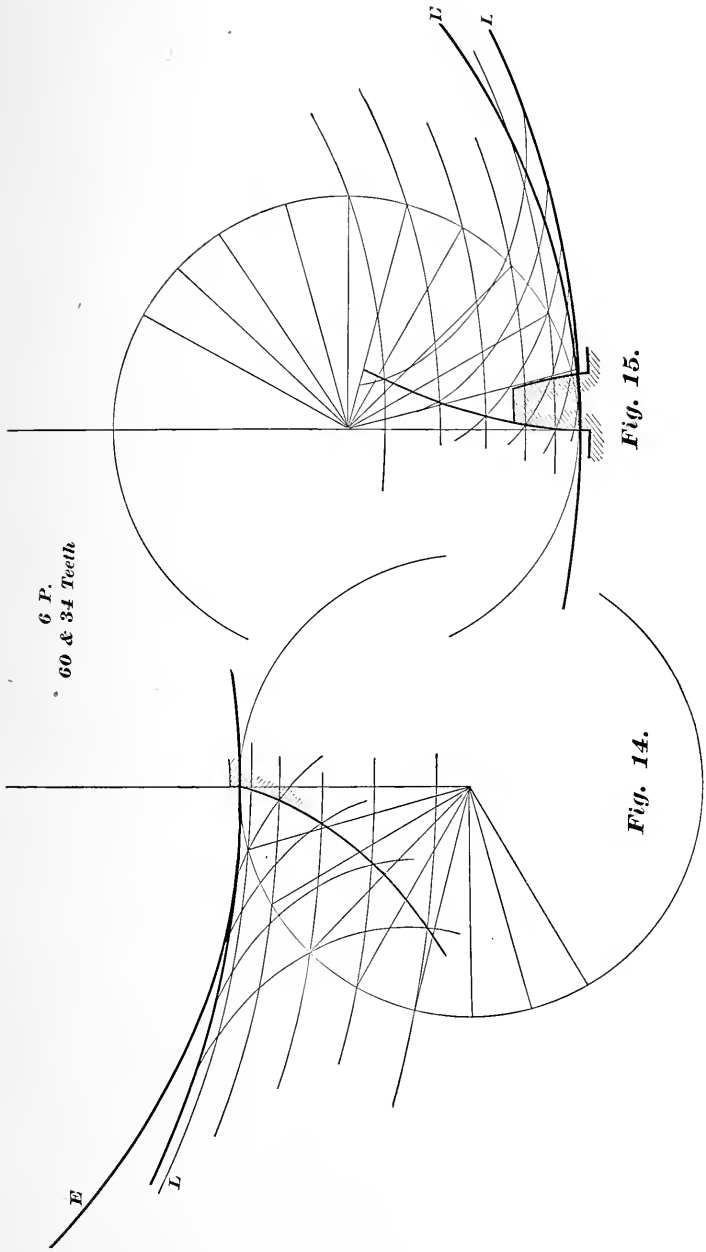


Fig. 14.

Fig. 15.

Second Method.—The difference between gear and pinion being very small, it is sometimes desirable to obtain a smooth action by avoiding what is termed the "friction of approaching action."* This is done, the *pinion driving*, by giving gear only flanks, Fig. 14, and the *gear driving*, by giving gear only faces, Fig. 15. In both these cases we have but one describing circle, whose diameter is equal to the difference of the two pitch diameters. The construction of the curve is precisely the same as described under A. The describing circle has been divided into 24 parts simply for the sake of greater accuracy.

PART B.—INTERNAL BEVEL GEARS.

The pitch surfaces of bevel gears are cones whose apexes are at a common point, rolling upon each other. The tooth forms for any given pair of bevel gears are the same as for a pair of spur gears (of same pitch) whose pitch radii are equal to the respective apex distances of the normal cones (*i. e.*, cones whose elements are perpendicular upon the elements of the bevel gear pitch cones). (Compare Fig. 17, page 40.)

The same is true of internal bevel gears, with the modification that here one of the pitch cones rolls inside of the other. The spur gears to whose tooth forms the forms of the bevel gear teeth correspond, resolve themselves into internal spur gears (Fig. 16). The problem is now to be solved as indicated in the first part of this chapter.

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* McCord, Kinematics, pages 107, 108.

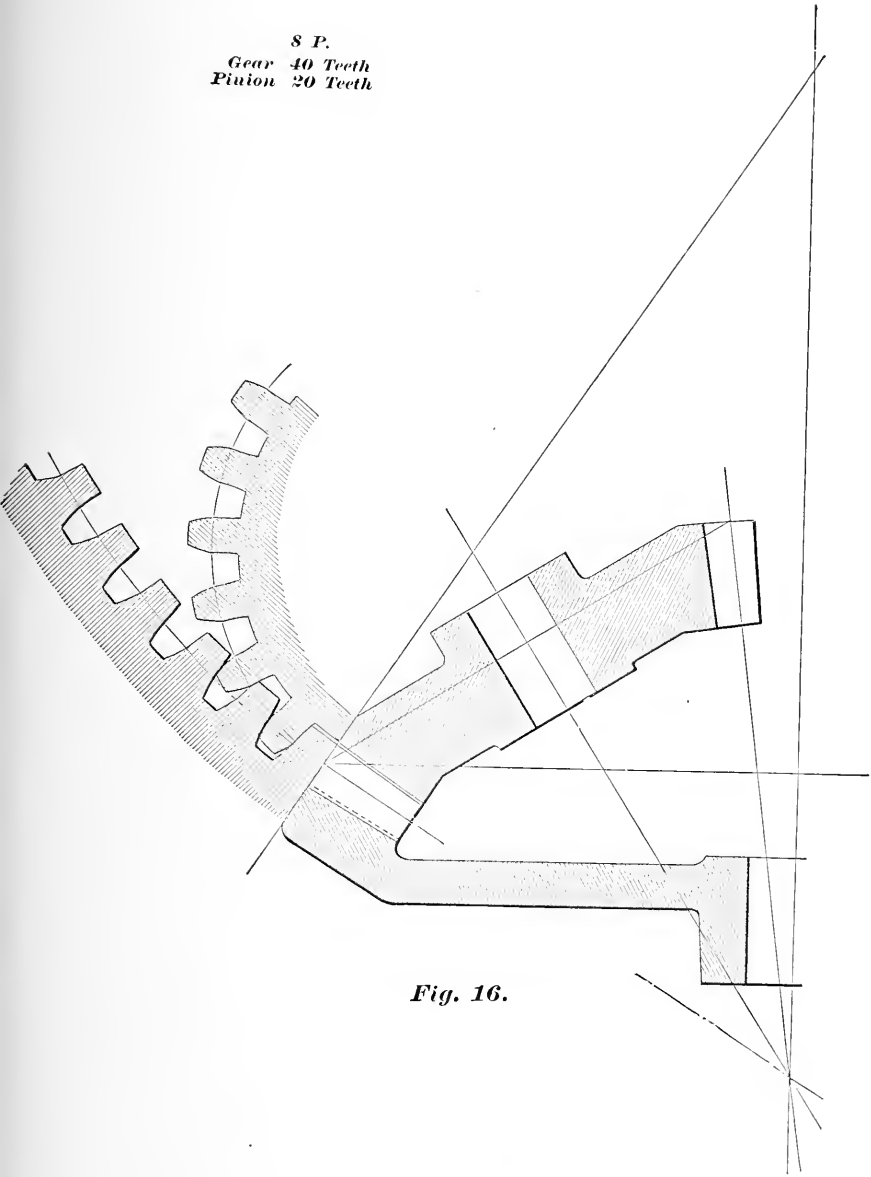


Fig. 16.

CHAPTER VII.

DIMENSIONS AND FORM FOR BEVEL GEAR CUTTERS.

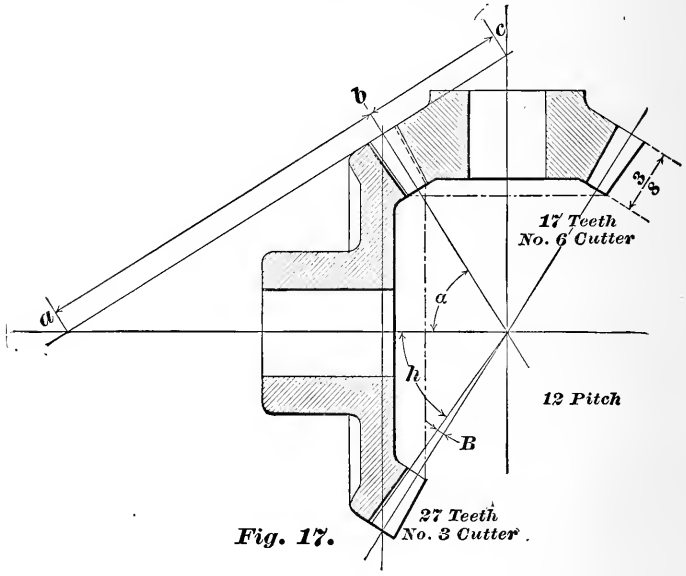


Fig. 17.

To determine the form and thickness of a bevel gear cutter, it is necessary to know the pitch, number of the teeth in gear and pinion, the angle of axes and the length of face of the tooth measured on the pitch line.

In the involute system of cutters (the only one used for bevel gears that are cut with rotary cutters), a set of eight different cutters is made for each pitch, numbered from 1 to 8 and cutting from a rack to 12 teeth.

In spur gearing each number represents the form of cutter suitable to cut the indicated number of teeth. Thus, the No. 6 cutter will cut 17 to 20 teeth.

In bevel gearing the curve is also dependent on the number of teeth in the mating gear; therefore gears with the same

number of teeth cannot always be cut with the same number of cutter. Thus, a 19 tooth pinion would be cut with a No. 4 cutter if it were to run with a 20 tooth gear, and with a No. 6 cutter if it were to run with a 50 tooth gear.

In order to find the curve to be used for gear and pinion, find the back cone radius, $a\ b$, for the gear and $b\ c$ for the pinion, and multiplying each by twice the diametral pitch, we obtain a number equivalent to the number of teeth for which cutters of proper curves may be selected.

For table, see Note 1, page 29.

The number of teeth for which the cutter should be selected can also be found by the following formulas:

N_a = number of teeth in gear.
N_b = number of teeth in pinion.
T_a = number of teeth to select cutter for gear.
T_b = number of teeth to select cutter for pinion.
α = centre angle of gear.

$$T_a = \frac{N_a}{N_b}\sqrt{N_a^2 - N_b^2}$$

$$T_b = \frac{N_b}{N_a}\sqrt{N_a^2 - N_b^2}$$

The above formulas apply only when axes of gears are at right angles. For axes at any angle the following formula can be used:

$$T = \frac{N}{\text{Cos } \alpha}$$

The tables, pages 86 and 87, are convenient for selecting cutters for bevel gears. They apply only when the axes are at right angles.

It is the practice to make bevel gear cutters .005″ thinner than the space at the small end of the tooth. Theoretically the cutting angle (h) is equal to the pitch angle less the angle of bottom (or $h = a - B'$). Practically, however, better results are obtained by making $h = a - B$ (substituting angle of top for angle of bottom), and in calculating the depth at small end, to add the full clearance (f) to the obtained working depth, giving an equal amount of clearance at the large and small ends. This is done to obtain a tooth thinner at the top and more

curved. As the small end of the tooth determines the thickness of cutter, we shall have to find the tooth part values at the small end. These are obtained by multiplying the tooth part values at the large end by the constant,

$$1 - \frac{2\,P\,F \sin \alpha}{N} \quad \text{where}$$

P = diametral pitch.
F = length of face of tooth measured on pitch line.
N = number of teeth in gear.
α = angle of edge or centre angle of gear.

EXAMPLE. Given gears 17 and 27 teeth, 12 pitch, 3/8″ face. Required tooth parts at small end of tooth.

$\alpha = 32° 12'$ (obtained fom table, page 78).
sin $32° 12' = .53288$.

$$1 - \frac{24 \times .375 \times .53288}{17} = .718 \text{ constant.}$$

$t = .1309$	$t' = .1309 \times .718 = .0940$
$s = .0833$	$s' = .0833 \times .718 = .0598$
$f = .0131$	$f = .0131$
$s + f = .0964$	$s' + f = .0598 + .0131 = .0729$
$D'' + f = .1798$	$D''' + f = .0729 + .0598 = .1327$

If in gears of more than 30 teeth the faces are proportionately long, we select a cutter whose curve corresponds to the midway section of the tooth. The curve of the cutter is found by the method explained in the first part of this chapter.

CHAPTER VIII.

THE INDEXING OF ANY WHOLE OR FRACTIONAL NUMBER—DIFFERENTIAL INDEXING.

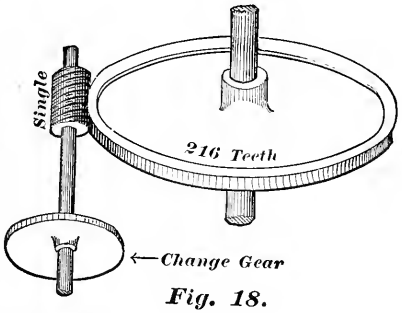


Fig. 18.

In indexing on a machine the question simply is: How many divisions of the machine index have to be advanced to advance a unit division of the number required. To which is the

$$\text{answer} = \frac{\text{divisions of machine index}}{\text{number to be indexed}}$$

Suppose the number of divisions in index wheel of machine to be 216.

EXAMPLE I.—Index 72.

Answer: $\frac{216}{72} = 3$ (3 turns of worm).

EXAMPLE II.—Index 123.

$$\frac{216}{123} = 1 + \frac{93}{123}$$

If now we should put on worm shaft a change gear having 123 teeth, give the worm shaft, Fig. 18, one turn, and in addition thereto advance 93 teeth of the change gear (to give the fractional turn), we would have indexed correctly one unit of the given number, and so solved the problem. Should we not have change gear 123 we may try those on hand. The question then is: How many teeth (χ) of the gear on hand (for instance 82) must we advance to obtain a result equal to the one when advancing 93 teeth of the 123 tooth gear? We have:

$$\frac{93}{123} = \frac{\chi}{82} \text{ where } \chi = 62$$

EXAMPLE III.—Index 365, change gear 147.

$$\frac{216}{365} = \frac{\chi}{147} \text{ where } \chi = 87 - \frac{3}{365}$$

Here 147 is the change gear on hand. In indexing for a unit of 365 we advance 87 teeth of our 147 tooth gear. It is evident that in so doing we advance too fast and will have indexed three teeth of our change gear too many when the circle is completed. To avoid having this error show in its total amount between the last and the first division, we can distribute the error by dropping one tooth at a time at three even intervals.

EXAMPLE IV.—Index 190.

$$\frac{216}{190} = 1 + \frac{26}{190} \qquad \text{Change gear on hand 88 T}$$

$$\frac{26}{190} = \frac{\chi}{88} \text{ where } \chi = 12 + \frac{8}{190}$$

To distribute the error in this case we advance one additional tooth ot a time of the change gear at eight even intervals.

EXAMPLE V.—Index 117.3913.

$$\frac{216}{117.3913} = 1 + \frac{986087}{1173913}$$

This example is in nowise different from the preceding ones, except that the fraction is expressed in large numbers. This fraction we can reduce to lower approximate values, which for practical purposes are accurate enough. This is done by the method of continued fractions. [For an explana-

tion of this method we refer to our "Practical Treatise on Gearing."]

$$\begin{array}{r|l}
 & \frac{986087}{1173913} \\
986087 & 1173913\ (1 \\
 & \underline{986087} \\
 & 187826)\ 986087\ (5 \\
 & \underline{939130} \\
 & 46957)\ 187826\ (3 \\
 & \underline{140871} \\
 & 46955)\ 46957\ (1 \\
 & \underline{46955} \\
 & 2)\ 46955\ (23477 \\
 & \underline{46954} \\
 & 1)\ 2\ (2 \\
 & \underline{2} \\
 & 0
\end{array}$$

$$\frac{986087}{1173913} = \cfrac{1}{1+\cfrac{1}{5+\cfrac{1}{3+\cfrac{1}{1+\cfrac{1}{23477+\cfrac{1}{2}}}}}}$$

1	5	$c=3$	1	23477	2
$a=1$	$b=5$	$d=16$	21	493033	986087
$a^1=1$	$b^1=6$	$d^1=19$	25	586944	1173913

NOTE.—Find the first two fractions by reduction $\frac{1}{1}=\frac{1}{1}$ and $\frac{1}{1+\frac{1}{5}}=\frac{5}{6}$; the others are then found by the rule $\begin{cases} b\,c+a=d \\ b^1\,c+a^1=d^1 \end{cases}$

The fraction $\frac{21}{25}$ is a good approximation; putting therefore a change gear of 25 teeth on worm shaft, we advance (beside the one full turn) 21 teeth to index our unit.

Of course, in using any but the correct fraction we have an error every time we index a division; so that when indexed around the whole circle, we have multiplied this error by the number of divisions.

In the present example this error is evidently equal to the difference between the correct and the approximate fraction used. Reducing both common fractions to decimal fractions we have:

$$\frac{986087}{1173913} = .84000006$$

$$\frac{21}{25} = \frac{.84000000}{.00000006} = \text{error in each division.}$$

.00000006 X 117.3913 = .00000704348 total error in complete circle. This error is expressed in parts of a unit division. (To find this error expressed in inches, multiply it by the distance between two divisions, measured on the circle.) In this case the approximate fraction being smaller than the correct one, in indexing the whole circle we fall short .00000704348 of a division.

EXAMPLE VI.—Index 15.708

$$\frac{216}{15.708} = 13 + \frac{11796}{15708}$$

$$\frac{11796}{15708} = \frac{983}{1309}$$

983) 1309 (1
983
326) 983 (3
978
5) 326 (65
30
26
25
1) 5 (5
5
0

$$\frac{983}{1309} = \frac{1}{1+\frac{1}{3+\frac{1}{65+\frac{1}{5}}}}$$

1	3	65	5
1	3	196	983
1	4	261	1309

In using the approximation $\frac{196}{261}$ the error for each division (found as above) will be .000002927, for the whole circle .0000460. In this case, the approximation being larger than the correct fraction, we overreach the circle by the error.

DIFFERENTIAL INDEXING.

In differential indexing the spindle or driven shaft and the index plate are connected by a train of gearing which causes the plate to turn either in the same or opposite direction to that in which the crank is turned. The total movement of the crank at every indexing is, therefore, equal to its movement relative to the plate, *plus* the movement of the plate, when the plate revolves in the same direction as the crank, or *minus* the movement of the plate, when the plate revolves in the opposite direction to the crank.

N = number of divisions required.
H = number of holes in index plate.
n = number of holes taken at each indexing.
V = ratio of gearing between index crank and spindle.
x = ratio of the train of gearing between the spindle and the index plate.
S = gear on spindle. G_1 = 1st gear on stud. } Drivers.
G_2 = 2d gear on stud. W = gear on worm. } Driven.

$$x = \frac{HV - Nn}{H} \text{ if HV is greater than } Nn.$$

$$x = \frac{Nn - HV}{H} \text{ if HV is less than } Nn.$$

$$x = \frac{S}{W} \text{ (For simple gearing).}$$

$$x = \frac{S\ G_1}{G_2 W} \text{ (For compound gearing).}$$

As applied to the spiral head of a Milling Machine made by Brown & Sharpe Mfg. Co., V is equal to 40 and the index plates furnished have the following numbers of holes :— 15, 16, 17, 18, 19, 20, 21, 23, 27, 29, 31, 33, 37, 39, 41, 43, 47, 49.

The gears furnished have the following numbers of teeth :— 24 (2), 28, 32, 40, 44, 48, 56, 64, 72, 86, 100. These index plates and gears provide for the indexing of all divisions up to 382.

In selecting the index circle to be used, it is best to select one with a number having factors that are contained in the change gears on hand, for if H contains a factor not found in the gears, x cannot usually be obtained, unless the factor is cancelled by the difference between HV and Nn, or unless N contains the factor.

Multiplying the numbers of holes in the plates by 40 gives all the values of HV that can be obtained with the regular index plates. Following is a table of these products, which will be found convenient to use, especially when many combinations are to be obtained.

15 × 40	600	21 × 40	840	37 × 40	1480
16 × 40	640	23 × 40	920	39 × 40	1560
17 × 40	680	27 × 40	1080	41 × 40	1640
18 × 40	720	29 × 40	1160	43 × 40	1720
19 × 40	760	31 × 40	1240	47 × 40	1880
20 × 40	800	33 × 40	1320	49 × 40	1960

When HV is greater than Nn and gearing is simple, use 1 idler.

When HV is greater than Nn and gearing is compound, use no idlers.

When HV is less than Nn and gearing is simple, use 2 idlers.

When HV is less than Nn and gearing is compound, use 1 idler.

Select "n" so that the ratio of gearing will not exceed 6 : 1 on account of the excessive stress upon the gears.

EXAMPLE 1.

$$N = 59. \qquad \text{Required H, } n \text{ and } x.$$

$$\text{Assume H} = 33 \quad n = 22$$

$$\text{Then } x = \frac{(33 \times 40) - (59 \times 22)}{33} = \frac{22}{33} = \frac{2}{3}$$

We now select gears giving this ratio, as 32 and 48, the 32 being the gear on spindle and the 48 the gear on worm. HV is greater than Nn and the gearing is simple, requiring one idler.

EXAMPLE 2.

$N = 319$. Required H, n and x.

Assume $H = 29 \cdot n = 4$

Then $x = \frac{(319 \times 4) - (29 \times 40)}{29} = \frac{116}{29} = \frac{4}{1}$

When the ratio is not obtainable with simple gearing, try compound gearing. $\frac{4}{1}$ can be expressed as follows: $\frac{3 \times 4}{1 \times 3}$ or $\frac{72 \times 64}{24 \times 48}$, for which there are available gears.

HV is less than Nn and the gearing is compound, requiring one idler.

SPACING FOR QUARTER DEGREES.

EXAMPLE 3.

Required H, n and x for spacing ¼ degree or 1440 divisions.

Assume $H = 33 \quad n = 1$

Then $\frac{(1440 \times 1) - (33 \times 40)}{33} = \frac{120}{33}$ or $\frac{64 \times 100}{40 \times 44}$

One idler is required.

ALIQUANT OR FRACTIONAL SPACING.

EXAMPLE 4.

Required: A Vernier to read to 1/12 degree or 5 minutes, the scale being divided to degrees.

Each Vernier space can equal $11/12$ degree.

$\frac{11}{12} \times \frac{1}{360} = \frac{11}{4320}$ or $\frac{4320}{11}$ spaces in whole circle $= 392\ 8/11$ spaces.

Assume $H = 18 \quad n = 2$.

Then $\frac{(392\ 8/11 \times 2) - (18 \times 40)}{18} = \frac{720/11}{18} =$

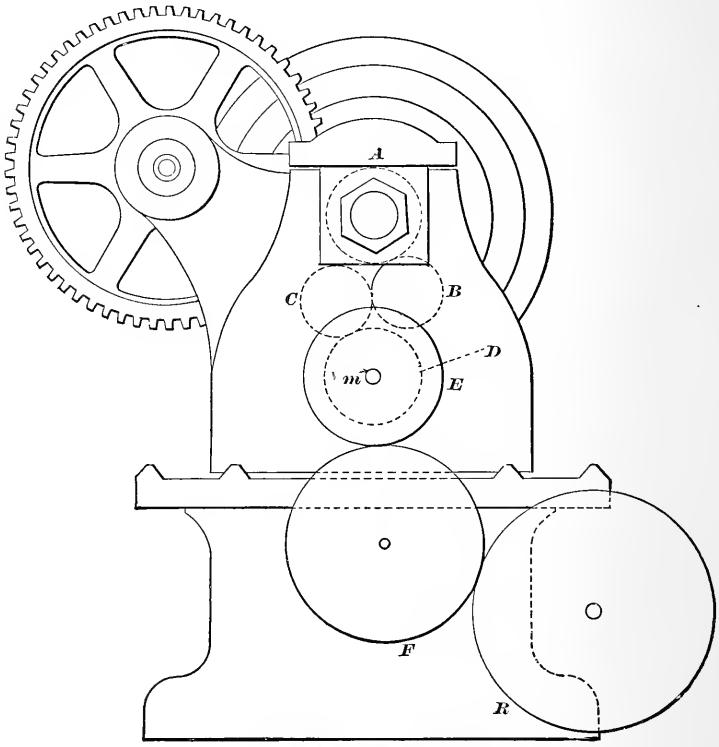
$\frac{720}{11} \times \frac{1}{18} = \frac{40}{11} = \frac{64 \times 100}{40 \times 44}$

One idler is required.

CHAPTER IX.

THE GEARING OF LATHES FOR SCREW CUTTING.

The problem of cutting a screw on a lathe resolves itself into connecting the lathe spindle with the lead screw by a train of gears in such a manner that the carriage (which is actuated by

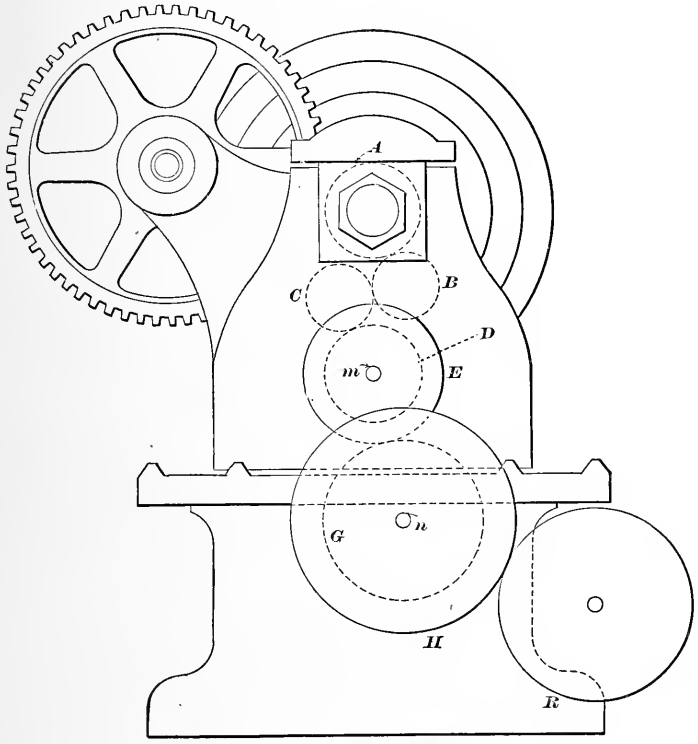


Simple Gearing.

Fig. 19.

the lead screw) advances just one inch, or some definite distance, while the lathe spindle makes a number of revolutions equal to the number of turns per inch or the definite distance to be cut.

The lead screw has, with the exception of a very few cases, always a single thread, and to advance the carriage one inch it therefore makes a number of revolutions equal to its number



Compound Gearing.

Fig. 20.

of threads per inch. Should the lead screw have double thread, it will, to accomplish the same result, make a number of revolutions equal to half its number of threads per inch. It follows that we must know in the first place the number of turns per inch of lead screw.

It ought to be clearly understood that one or more intermediate gears, which simply transmit the motion received from one gear to another, in no wise alter the ultimate ratio of a train of gearing. An even number of intermediate gears simply change the direction of rotation, an odd number do not alter it.

The gearing of a lathe to solve a problem in screw cutting can be accomplished by

A. Simple gearing.
B. Compound gearing.

Referring to the diagrams, Figs. 19 and 20, we have in Fig. 19 a case of simple, and in Fig. 20 a case of compound gearing.

In simple gearing the motion from gear E is transmitted either directly to gear R on lead screw or through the intermediate F. In compound gearing the motion of E is transmitted through two gears (G and H) keyed together, revolving on the same stud *n*, by which we can change the velocity ratio of the motion while transmitting it from E to R. With these four variables E, G, H, R, we are enabled to have a wider range of changes than in simple gearing.

B and C, being intermediate gears, are not to be considered. If, as is generally the case, gear A equals gear D, we disregard them both, simply remembering that gear E (being fast on same shaft with D) makes as many revolutions as the spindle. Sometimes gear D is twice as large as gear A, then, still considering gear E as making as many revolutions as the spindle, we deal with the lead screw as having twice as many turns per inch as it measures.

SIMPLE GEARING.

Let there be: the number of teeth in the different gears expressed by their respective letters, as per Fig. 19, and

s = turns per inch to be cut,
L = turns per inch of lead screw; then

1. $$\frac{s}{L} = \frac{R}{E}$$

If now one of the two gears E and R is selected, the other will be:

$$R = \frac{s\,E}{L}; \quad E = \frac{L\,R}{s}$$

2. The two gears may be found by making

$$\left.\begin{aligned} R &= p\,s \\ E &= p\,L \end{aligned}\right\} \text{where } p \text{ may be any number.}$$

3. The above holds good when a fractional thread is to be cut, but if the fraction is expressed in large numbers, as, for instance, $s = 2.833$ $(2\frac{833}{1000})$, we first reduce this fraction $(\frac{833}{1000})$ to lower approximate values by the process of continued fraction (see pages 43 and 44).

833) 1000 (1
833
167) 833 (4
668
165) 167 (1
165
2) 165 (82
16
5
4
1) 2 (2
2
0

1	4	1	82	2
$\frac{1}{1}$	$\frac{4}{5}$	$\frac{5}{6}$	$\frac{414}{497}$	$\frac{833}{1000}$

$\frac{5}{6} = .833$ (nearly) and $s = 2\frac{5}{6}$

If in this case $L = 4$, and we select $E = 48$, then, since

$$R = \frac{s\,E}{L} \quad R = 34$$

COMPOUND GEARING.

4. In a lathe geared compound for cutting a screw the product of the drivers (E and H, Fig. 20) multiplied by the number of turns per inch to be cut must equal the product of the driven (G and R) multiplied by the number of turns per inch of lead screw. This is expressed by

$$E\,H\,s = G\,R\,L \text{ or } \frac{E\,H\,s}{G\,R\,L} = 1$$

If three of the gears E, H, G, R have been selected, the fourth one would be either

$$E = \frac{G\ R\ L}{H\ s} \quad \text{or}$$

$$H = \frac{G\ R\ L}{E\ s} \quad \text{or}$$

$$G = \frac{E\ H\ s}{R\ L} \quad \text{or}$$

$$R = \frac{E\ H\ s}{G\ L}$$

$$s = \frac{R\ G\ L}{E\ H} = L\left(\frac{R\ G}{L\ E\ H}\right)$$

If a fractional thread is to be cut, as under "3," we reduce the fraction to lower approximate values.

EXAMPLE.—Gear for 5.2327 turns per inch, lead screw is 6 turns per inch.

$$.2327 = \frac{2327}{10000}$$

2327) 10000 (4
9308
692) 2327 (3
2076
251) 692 (2
502
190) 251 (1
190
61) 190 (3
183
7) 61 (8
56
5) 7 (1
5
2) 5 (2
4
1) 2 (2
2
0

4	3	2	1	3	8	1	2	2
1	3	7	10	37	306	343	992	2327
4	13	30	43	159	1315	1474	4263	10000

$$\frac{10}{43} = .2327 \text{ (nearly) and } 5.2327 = 5\frac{10}{43}$$

Selecting E = 43, H = 52, R = 50, and

$$G = \frac{E\ H\ s}{R\ L} \text{ we have } G = \frac{43 \times 52 \times 5\frac{10}{43}}{50 \times 6} = 39$$

5. The examples so far given all deal with single thread. The pitch of a screw is the distance from centre of one thread to the centre of the next. The lead of a screw is the advance for each complete revolution. In a single thread screw the pitch is equal to the lead, while in a double thread screw the pitch is equal to one-half the lead ; in a triple thread screw equal to one-third the lead, etc.

If we have to gear a lathe for a many-threaded screw (double, triple, quadruple, etc.), we simply ascertain the lead, and deal with the lead as we would with the pitch in a single thread screw, *i. e.*, we divide one inch by it, to obtain the number of threads for which we have to gear our lathe.

EXAMPLE.—Gear for double thread screw, lead = .4654. Number of turns per inch to be geared for is :

$$\frac{1}{\text{Lead}} = \frac{1}{.4654} = 2.1487$$

Lead screw is four turns per inch.

As in previous examples, we reduce the fraction $.1487 = \frac{1487}{10000}$ to lower approximate values by the process of continued fraction.

From the different values received in the usual way we select :

$$\tfrac{11}{74} = .1487 \text{ (nearly) and } 2.1487 = 2\tfrac{11}{74}$$

We have therefore :

$$s = 2\tfrac{11}{74}$$
$$L = 4$$
$$\text{Selecting} \begin{cases} E = 74 \\ G = 30 \\ H = 40 \end{cases}$$

$$R = \frac{E\ H\ s}{G\ L} = \frac{74 \times 40 \times 2\tfrac{11}{74}}{30 \times 4} = 53$$

NOTE.—In using any but the original fraction we commit an error. This error can be found by reducing the approximate fraction used to a decimal fraction, and comparing it with the original fraction. In the above example the original fraction is

$$\begin{array}{l} .1487 \text{ and} \\ \tfrac{11}{74} = .14864 \\ \hline \text{Error} = .00006 \text{ inch in lead.} \end{array}$$

In cutting a multiple screw, after having cut one thread, the question arises how to move the thread tool the correct amount for cutting the next thread.

In cutting double, triple, etc., threads, if in simple or compound gearing the number of teeth in gear E is divisible by 2, 3, etc., we so divide the teeth; then leaving the carriage at rest we bring gear E out of mesh and move it forward one division, whereby the spindle will assume the correct position.

When E is not divisible we find how many turns (V) of gear R are made to each full turn of the spindle. Dividing this number by 2 for double, by 3 for triple thread, etc., we advance R so many turns and fractions of a turn, being careful to leave the spindle at rest.

For compound gearing:

$$V = \frac{E\ H}{G\ R}$$

When the gear D is twice as large as the gear A (as explained in fifth paragraph, page 52), the formula would be

$$V = \frac{E\ H}{2\ G\ R}$$

If in simple gearing both E and R are not divisible, one remedy would be to gear the lathe compound; or the face-plate may be accurately divided in two, three or more slots, and all that is then necessary is to move the dog from one slot to another, the carriage remaining stationary.

COMPARATIVE SIZES OF GEAR TEETH.

INVOLUTE.

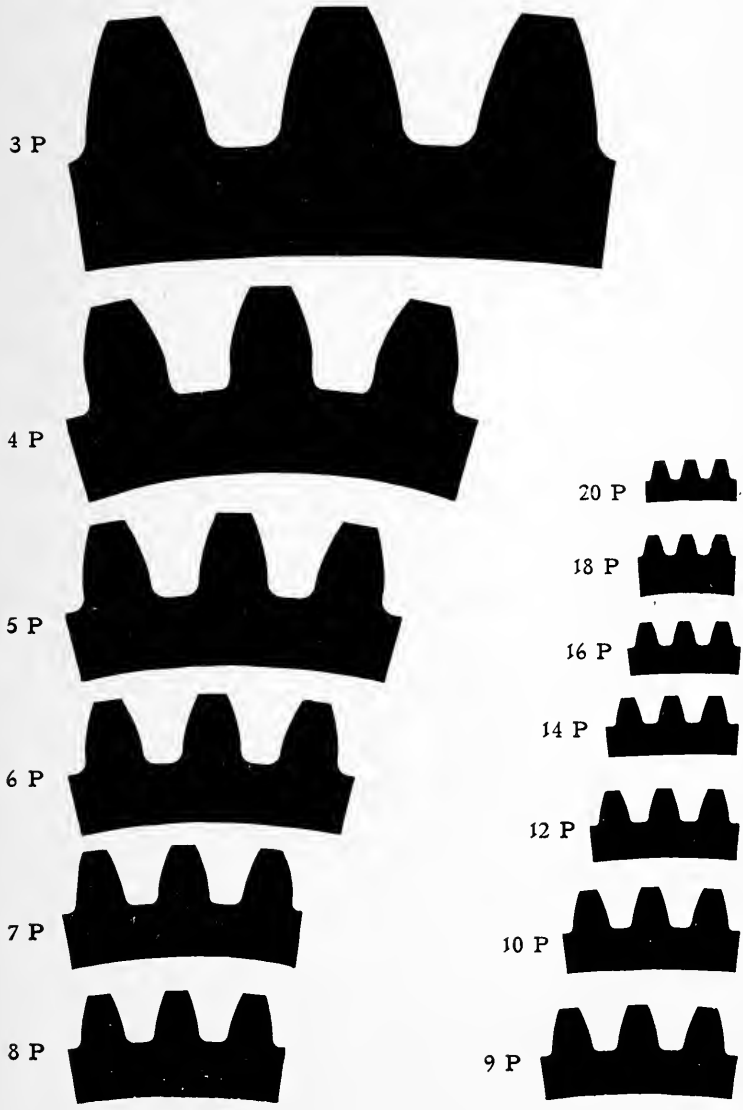


Fig. 21.

Table of Tooth Parts.

TABLE OF TOOTH PARTS.

CIRCULAR PITCH IN FIRST COLUMN.

Circular Pitch.	Threads or Teeth per inch Linear.	Diametral Pitch.	Thickness of Tooth on Pitch Line.	Addendum and Module.	Working Depth of Tooth.	Depth of Space below Pitch Line.	Whole Depth of Tooth.	Width of Thread-Tool at End.	Width of Thread at Top.
P'	$\frac{1''}{P'}$	P	t	s	D''	$s+f$	$D''+f$	$P' \times .31$	$P' \times .335$
2	$\frac{1}{2}$	1.5708	1.0000	.6366	1.2732	.7366	1.3732	.6200	.6700
$1\frac{7}{8}$	$\frac{8}{15}$	1.6755	.9375	.5968	1.1937	.6906	1.2874	.5813	.6281
$1\frac{3}{4}$	$\frac{4}{7}$	1.7952	.8750	.5570	1.1141	.6445	1.2016	.5425	.5863
$1\frac{5}{8}$	$\frac{8}{13}$	1.9333	.8125	.5173	1.0345	.5985	1.1158	.5038	.5444
$1\frac{1}{2}$	$\frac{2}{3}$	2.0944	.7500	.4775	.9549	.5525	1.0299	.4650	.5025
$1\frac{7}{16}$	$\frac{16}{23}$	2.1855	.7187	.4576	.9151	.5294	.9870	.4456	.4816
$1\frac{3}{8}$	$\frac{8}{11}$	2.2848	.6875	.4377	.8754	.5064	.9441	.4262	.4606
$1\frac{1}{3}$	$\frac{3}{4}$	2.3562	.6666	.4244	.8488	.4910	.9154	.4133	.4466
$1\frac{5}{16}$	$\frac{16}{21}$	2.3936	.6562	.4178	.8356	.4834	.9012	.4069	.4397
$1\frac{1}{4}$	$\frac{4}{5}$	2.5133	.6250	.3979	.7958	.4604	.8583	.3875	.4188
$1\frac{3}{16}$	$\frac{16}{19}$	2.6456	.5937	.3780	.7560	.4374	.8156	.3681	.3978
$1\frac{1}{8}$	$\frac{8}{9}$	2.7925	.5625	.3581	.7162	.4143	.7724	.3488	.3769
$1\frac{1}{16}$	$\frac{16}{17}$	2.9568	.5312	.3382	.6764	.3913	.7295	.3294	.3559
1	1	3.1416	.5000	.3183	.6366	.3683	.6866	.3100	.3350
$\frac{15}{16}$	$1\frac{1}{15}$	3.3510	.4687	.2984	.5968	.3453	.6437	.2906	.3141
$\frac{7}{8}$	$1\frac{1}{7}$	3.5904	.4375	.2785	.5570	.3223	.6007	.2713	.2931
$\frac{13}{16}$	$1\frac{3}{13}$	3.8666	.4062	.2586	.5173	.2993	.5579	.2519	.2722
$\frac{4}{5}$	$1\frac{1}{4}$	3.9270	.4000	.2546	.5092	.2946	.5492	.2480	.2680
$\frac{3}{4}$	$1\frac{1}{3}$	4.1888	.3750	.2387	.4775	.2762	.5150	.2325	.2513
$\frac{11}{16}$	$1\frac{5}{11}$	4.5696	.3437	.2189	.4377	.2532	.4720	.2131	.2303
$\frac{2}{3}$	$1\frac{1}{2}$	4.7124	.3333	.2122	.4244	.2455	.4577	.2066	.2233
$\frac{5}{8}$	$1\frac{3}{5}$	5.0265	.3125	.1989	.3979	.2301	.4291	.1938	.2094
$\frac{3}{5}$	$1\frac{2}{3}$	5.2360	.3000	.1910	.3820	.2210	.4120	.1860	.2010
$\frac{4}{7}$	$1\frac{3}{4}$	5.4978	.2857	.1819	.3638	.2105	.3923	.1771	.1914
$\frac{9}{16}$	$1\frac{7}{9}$	5.5851	.2812	.1790	.3581	.2071	.3862	.1744	.1884

TABLE OF TOOTH PARTS.—*Continued.*

CIRCULAR PITCH IN FIRST COLUMN.

Circular Pitch.	Threads or Teeth per inch Linear.	Diametral Pitch.	Thickness of Tooth on Pitch Line.	Addendum and Module.	Working Depth of Tooth.	Depth of Space below Pitch Line.	Whole Depth of Tooth.	Width of Thread-Tool at End.	Width of Thread at Top.
P′	$\frac{1}{P'}$″	P	t	s	D″	$s+f$	D″+f.	P′×.31	P′×.335
$\frac{1}{2}$	2	6.2832	.2500	.1592	.3183	.1842	.3433	.1550	.1675
$\frac{4}{9}$	$2\frac{1}{4}$	7.0685	.2222	.1415	.2830	.1637	.3052	.1378	.1489
$\frac{7}{16}$	$2\frac{2}{7}$	7.1808	.2187	.1393	.2785	.1611	.3003	.1356	.1466
$\frac{3}{7}$	$2\frac{1}{3}$	7.3304	.2143	.1364	.2728	.1578	.2942	.1328	.1436
$\frac{2}{5}$	$2\frac{1}{2}$	7.8540	.2000	.1273	.2546	.1473	.2746	.1240	.1340
$\frac{3}{8}$	$2\frac{2}{3}$	8.3776	.1875	.1194	.2387	.1381	.2575	.1163	.1256
$\frac{4}{11}$	$2\frac{3}{4}$	8.6394	.1818	.1158	.2316	.1340	.2498	.1127	.1218
$\frac{1}{3}$	3	9.4248	.1666	.1061	.2122	.1228	.2289	.1033	.1117
$\frac{5}{16}$	$3\frac{1}{5}$	10.0531	.1562	.0995	.1989	.1151	.2146	.0969	.1047
$\frac{3}{10}$	$3\frac{1}{3}$	10.4719	.1500	.0955	.1910	.1105	.2060	.0930	.1005
$\frac{2}{7}$	$3\frac{1}{2}$	10.9956	.1429	.0909	.1819	.1052	.1962	.0886	.0957
$\frac{1}{4}$	4	12.5664	.1250	.0796	.1591	.0921	.1716	.0775	.0838
$\frac{2}{9}$	$4\frac{1}{2}$	14.1372	.1111	.0707	.1415	.0818	.1526	.0689	.0744
$\frac{1}{5}$	5	15.7080	.1000	.0637	.1273	.0737	.1373	.0620	.0670
$\frac{3}{16}$	$5\frac{1}{3}$	16.7552	.0937	.0597	.1194	.0690	.1287	.0581	.0628
$\frac{2}{11}$	$5\frac{1}{2}$	17.2788	.0909	.0579	.1158	.0670	.1249	.0564	.0609
$\frac{1}{6}$	6	18.8496	.0833	.0531	.1061	.0614	.1144	.0517	.0558
$\frac{2}{13}$	$6\frac{1}{2}$	20.4203	.0769	.0489	.0978	.0566	.1055	.0477	.0515
$\frac{1}{7}$	7	21.9911	.0714	.0455	.0910	.0526	.0981	.0443	.0479
$\frac{2}{15}$	$7\frac{1}{2}$	23.5619	.0666	.0425	.0850	.0492	.0917	.0414	.0446
$\frac{1}{8}$	8	25.1327	.0625	.0398	.0796	.0460	.0858	.0388	.0419
$\frac{1}{9}$	9	28.2743	.0555	.0354	.0707	.0409	.0763	.0344	.0372
$\frac{1}{10}$	10	31.4159	.0500	.0318	.0637	.0368	.0687	.0310	.0335
$\frac{1}{16}$	16	50.2655	.0312	.0199	.0398	.0230	.0429	.0194	.0209
$\frac{1}{20}$	20	62.8318	.0250	.0159	.0318	.0184	.0343	.0155	.0167

TABLE OF TOOTH PARTS.

DIAMETRAL PITCH IN FIRST COLUMN.

Diametral Pitch.	Circular Pitch.	Thickness of Tooth on Pitch Line.	Addendum and Module.	Working Depth of Tooth.	Depth of Space below Pitch Line.	Whole Depth of Tooth.
P	P′	t	s	D′′	$s+f$.	D′′$+f$.
½	6.2832	3.1416	2.0000	4.0000	2.3142	4.3142
¾	4.1888	2.0944	1.3333	2.6666	1.5428	2.8761
1	3.1416	1.5708	1.0000	2.0000	1.1571	2.1571
1¼	2.5133	1.2566	.8000	1.6000	.9257	1.7257
1½	2.0944	1.0472	.6666	1.3333	.7714	1.4381
1¾	1.7952	.8976	.5714	1.1429	.6612	1.2326
2	1.5708	.7854	.5000	1.0000	.5785	1.0785
2¼	1.3963	.6981	.4444	.8888	.5143	.9587
2½	1.2566	.6283	.4000	.8000	.4628	.8628
2¾	1.1424	.5712	.3636	.7273	.4208	.7844
3	1.0472	.5236	.3333	.6666	.3857	.7190
3½	.8976	.4488	.2857	.5714	.3306	.6163
4	.7854	.3927	.2500	.5000	.2893	.5393
5	.6283	.3142	.2000	.4000	.2314	.4314
6	.5236	.2618	.1666	.3333	.1928	.3595
7	.4488	.2244	.1429	.2857	.1653	.3081
8	.3927	.1963	.1250	.2500	.1446	.2696
9	.3491	.1745	.1111	.2222	.1286	.2397
10	.3142	.1571	.1000	.2000	.1157	.2157
11	.2856	.1428	.0909	.1818	.1052	.1961
12	.2618	.1309	.0833	.1666	.0964	.1798
13	.2417	.1208	.0769	.1538	.0890	.1659
14	.2244	.1122	.0714	.1429	.0826	.1541

TABLE OF TOOTH PARTS—*Continued.*

DIAMETRAL PITCH IN FIRST COLUMN.

Diametral Pitch.	Circular Pitch.	Thickness of Tooth on Pitch Line.	Addendum and Module.	Working Depth of Tooth.	Depth of Space below Pitch Line.	Whole Depth of Tooth.
P.	P′.	*t*.	*s*.	D″.	$s+f$.	D″$+f$.
15	.2094	.1047	.0666	.1333	.0771	.1438
16	.1963	.0982	.0625	.1250	.0723	.1348
17	.1848	.0924	.0588	.1176	.0681	.1269
18	.1745	.0873	.0555	.1111	.0643	.1198
19	.1653	.0827	.0526	.1053	.0609	.1135
20	.1571	.0785	.0500	.1000	.0579	.1079
22	.1428	.0714	.0455	.0909	.0526	.0980
24	.1309	.0654	.0417	.0833	.0482	.0898
26	.1208	.0604	.0385	.0769	.0445	.0829
28	.1122	.0561	.0357	.0714	.0413	.0770
30	.1047	.0524	.0333	.0666	.0386	.0719
32	.0982	.0491	.0312	.0625	.0362	.0674
34	.0924	.0462	.0294	.0588	.0340	.0634
36	.0873	.0436	.0278	.0555	.0321	.0599
38	.0827	.0413	.0263	.0526	.0304	.0568
40	.0785	.0393	.0250	.0500	.0289	.0539
42	.0748	.0374	.0238	.0476	.0275	.0514
44	.0714	.0357	.0227	.0455	.0263	.0490
46	.0683	.0341	.0217	.0435	.0252	.0469
48	.0654	.0327	.0208	.0417	.0241	.0449
50	.0628	.0314	.0200	.0400	.0231	.0431
56	.0561	.0280	.0178	.0357	.0207	.0385
60	.0524	.0262	.0166	.0333	.0193	.0360

Tables Giving Chordal Thickness of Gear Teeth and Distance from Chord to Top of Tooth.

Tables Giving Chordal Thickness of Gear Teeth (t'') and Distance from Chord to Top of Tooth (s'').

The tables give the chordal thickness of teeth and the distance from the chord to the top of the tooth for gears of 1 diametral pitch and 1″ circular pitch respectively.

To obtain t'' and s'' for any diametral pitch, divide the figures given in the table for 1 diametral pitch by the required diametral pitch.

EXAMPLE—Find t'' and s'' for a gear 5 diametral pitch, 23 teeth.

$$1.5696 \div 5 = .3139 = t''$$
$$1.0268 \div 5 = .2054 = s''$$

1 DIAMETRAL PITCH			
No. of Teeth.	No. of Cutter.	t''	s''
8		1.5607	1.0768
9		1.5628	1.0684
10		1.5643	1.0616
11		1.5654	1.0559
12	8	1.5663	1.0514
13	7½	1.5670	1.0474
14	7	1.5675	1.0440
15	6½	1.5679	1.0411
17	6	1.5686	1.0362
19	5½	1.5690	1.0324
21	5	1.5694	1.0294
23	4½	1.5696	1.0268
26	4	1.5698	1.0237
30	3½	1.5701	1.0208
35	3	1.5702	1.0176
42	2½	1.5704	1.0147
55	2	1.5706	1.0112
80	1½	1.5707	1.0077
135	1	1.5708	1.0046

To obtain t'' and s'' for any circular pitch, multiply the figures given in the table for 1″ circular pitch by the required circular pitch.

EXAMPLE—Find t'' and s'' for a ¾″ circular pitch gear with 15 teeth.

$$.4991 \times \tfrac{3}{4} = .3743 = t''$$
$$.3314 \times \tfrac{3}{4} = .2486 = s''$$

1 CIRCULAR PITCH			
No of Teeth.	No. of Cutter.	t''	s''
8		.4968	.3428
9		.4975	.3401
10		.4979	.3379
11		.4983	.3361
12	8	.4986	.3347
13	7½	.4988	.3334
14	7	.4990	.3323
15	6½	.4991	.3314
17	6	.4993	.3298
19	5½	.4995	.3286
21	5	.4996	.3277
23	4½	.4997	.3268
26	4	.4997	.3258
30	3½	.4998	.3249
35	3	.4998	.3239
42	2½	.4999	.3230
55	2	.5000	.3219
80	1½	.5000	.3208
135	1	.5000	.3198

These tables are intended to be used for spur gears only. They can, however, be used for bevel gears by selecting t'' according to the number of teeth in the bevel gear and selecting s'' according to the number of teeth in a spur gear having a radius corresponding to the back cone radius of the bevel gear.

Table Giving Diameter Increments.

To use the following table for finding the outside diameters of Bevel Gears with axes at right angles, divide the figures given opposite the required numbers of teeth by the diametral pitch (P) and add to the pitch diameter, using the upper figure in the space for the gear and the lower for the pinion.

EXAMPLE.—Required, the outside diameters of a pair of bevel gears, 10 P, 35 T into 23 T. Referring to the table, the diameter increments are found to be for the gear 1.10 and for the pinion 1.67.

$1.10 \div 10 = .110$; 3.5 pitch diameter $+ .110 = 3.610$ outside diameter of gear.

$1.67 \div 10 = .167$; 2.3 pitch diameter $+ .167 = 2.467$ outside diameter of pinion.

DIAMETER INCREMENT.

GEAR

PINION	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
12	.33 1.97	.33 1.97	.34 1.97	.34 1.97	.35 1.97	.35 1.97	.36 1.97	.36 1.97	.37 1.97	.37 1.96	.38 1.96	.39 1.96	.39 1.96	.40 1.96	.41 1.96	.41 1.96
13	.36 1.97	.36 1.97	.37 1.97	.37 1.97	.38 1.96	.38 1.96	.39 1.96	.39 1.96	.40 1.96	.40 1.96	.41 1.96	.42 1.96	.42 1.95	.43 1.95	.44 1.95	.44 1.95
14	.38 1.96	.39 1.96	.39 1.96	.40 1.96	.40 1.96	.41 1.96	.42 1.96	.42 1.96	.43 1.95	.43 1.95	.44 1.95	.45 1.95	.45 1.95	.46 1.95	.47 1.94	.48 1.94
15	.41 1.96	.41 1.96	.42 1.96	.42 1.95	.43 1.95	.44 1.95	.44 1.95	.45 1.95	.46 1.95	.46 1.95	.47 1.94	.48 1.94	.48 1.94	.49 1.94	.50 1.94	.51 1.94
16	.43 1.95	.44 1.95	.45 1.95	.45 1.95	.46 1.95	.46 1.95	.47 1.94	.48 1.94	.48 1.94	.49 1.94	.50 1.94	.51 1.93	.52 1.93	.52 1.93	.53 1.93	.54 1.93
17	.46 1.95	.47 1.95	.47 1.94	.48 1.94	.48 1.94	.49 1.94	.50 1.94	.51 1.93	.51 1.93	.52 1.93	.53 1.93	.54 1.93	.55 1.92	.55 1.92	.56 1.92	.57 1.92
18	.48 1.94	.49 1.94	.50 1.94	.50 1.94	.51 1.93	.52 1.93	.53 1.93	.53 1.93	.54 1.93	.55 1.92	.56 1.92	.57 1.92	.57 1.92	.58 1.91	.59 1.91	.60 1.91
19	.51 1.93	.52 1.93	.52 1.93	.53 1.93	.54 1.93	.55 1.92	.55 1.92	.56 1.92	.57 1.92	.58 1.91	.59 1.91	.59 1.91	.60 1.91	.61 1.90	.62 1.90	.63 1.90
20	.54 1.93	.54 1.93	.55 1.92	.56 1.92	.56 1.92	.57 1.92	.58 1.91	.59 1.91	.60 1.91	.61 1.91	.61 1.90	.62 1.90	.63 1.90	.64 1.89	.65 1.89	.66 1.89
21	.56 1.92	.57 1.92	.57 1.92	.58 1.91	.59 1.91	.60 1.91	.61 1.91	.61 1.90	.62 1.90	.63 1.90	.64 1.89	.65 1.89	.66 1.89	.67 1.88	.68 1.88	.70 1.87
22	.58 1.91	.59 1.91	.60 1.91	.61 1.91	.62 1.90	.62 1.90	.63 1.90	.64 1.89	.65 1.89	.66 1.89	.67 1.88	.68 1.88	.69 1.88	.70 1.87	.71 1.87	.72 1.87
23	.61 1.91	.62 1.90	.62 1.90	.63 1.90	.64 1.89	.65 1.89	.66 1.89	.67 1.89	.68 1.88	.69 1.88	.70 1.88	.71 1.87	.72 1.87	.73 1.86	.74 1.86	.75 1.85
24	.63 1.90	.64 1.89	.65 1.89	.66 1.89	.67 1.89	.67 1.88	.68 1.88	.69 1.88	.70 1.87	.71 1.87	.72 1.87	.73 1.86	.74 1.86	.75 1.85	.76 1.85	.78 1.84
25	.66 1.89	.67 1.88	.67 1.88	.68 1.88	.69 1.88	.70 1.87	.71 1.87	.72 1.87	.73 1.86	.74 1.86	.75 1.86	.76 1.85	.77 1.85	.78 1.84	.79 1.84	.80 1.83
26	.68 1.88	.69 1.88	.70 1.87	.71 1.87	.71 1.87	.72 1.86	.73 1.86	.74 1.86	.75 1.85	.76 1.85	.77 1.84	.78 1.84	.80 1.84	.81 1.83	.82 1.82	.83 1.82
27	.70 1.87	.71 1.87	.72 1.87	.73 1.86	.74 1.86	.75 1.86	.76 1.85	.77 1.85	.78 1.84	.79 1.84	.80 1.83	.81 1.83	.82 1 82	.83 1.82	.84 1.81	.86 1.81
28	.72 1.86	.73 1.86	.74 1.86	.75 1.85	.76 1.85	.77 1.85	.78 1.84	.79 1.84	.80 1.83	.81 1.83	.82 1.82	.83 1.82	.85 1.81	.86 1.81	.87 1.80	.88 1.80
29	.75 1.86	.76 1.85	.77 1.85	.78 1.84	.78 1.84	.79 1.84	.80 1.83	.82 1.83	.83 1.82	.84 1.82	.85 1.81	.86 1.81	.87 1.80	.88 1.80	.89 1.79	.91 1.78
30	.77 1.85	.78 1.84	.79 1.84	.80 1.83	.81 1.83	.82 1.83	.83 1.82	.84 1.82	.85 1.81	.86 1.81	.87 1.80	.88 1.79	.89 1.79	.91 1.78	.92 1.78	.93 1.77
31	.79 1.84	.80 1.83	.81 1.83	.82 1.82	.83 1.82	.84 1.82	.85 1.81	.86 1.81	.87 1.80	.88 1.79	.89 1.79	.91 1.78	.92 1.78	.93 1.77	.94 1.76	.96 1.76
32	.81 1.83	.82 1.82	.83 1.82	.84 1.81	.85 1.81	.86 1.80	.87 1.80	.88 1.79	.89 1.79	.91 1.78	.92 1.78	.93 1.77	.94 1.76	.95 1.76	.97 1.75	.98 1.74
33	.83 1.82	.84 1.81	.85 1.81	.86 1.80	.87 1.80	.88 1.79	.89 1.79	.91 1.78	.92 1.78	.93 1.77	.94 1.77	.95 1.76	.96 1.75	.98 1.75	.99 1.74	1.00 1.73
34	.85 1.81	.86 1.80	.87 1.80	.88 1.79	.89 1.79	.91 1.78	.92 1.78	.93 1.77	.94 1.77	.95 1.76	.96 1.75	.97 1.75	.99 1.74	1.00 1.73	1.01 1.73	1.02 1.72
35	.87 1.80	.88 1.79	.89 1.79	.90 1.78	.92 1.78	.93 1.77	.94 1.77	.95 1.76	.96 1.75	.97 1.75	.98 1.74	1.00 1.73	1.01 1.73	1.02 1.72	1.03 1.71	1.05 1.70
36	.89 1.79	.90 1.78	.91 1.78	.93 1.77	.94 1.77	.95 1.76	.96 1.76	.97 1.75	.98 1.74	.99 1.74	1.00 1.73	1.02 1.72	1.03 1.71	1.04 1.71	1.05 1.70	1.07 1.69
37	.91 1.78	.92 1.77	.93 1.77	.95 1.76	.96 1.76	.97 1.75	.98 1.74	.99 1.74	1.00 1.73	1.01 1.72	1.03 1.72	1.04 1.71	1.05 1.70	1.06 1.69	1.08 1.69	1.09 1.68
38	.93 1.77	.94 1.76	.95 1.76	.97 1.75	.98 1.75	.99 1.74	1.00 1.73	1.01 1.73	1.02 1.72	1.03 1.71	1.05 1.71	1.06 1.70	1.07 1.69	1.08 1.68	1.10 1.67	1.11 1.66
39	.95 1.76	.96 1.75	.97 1.75	.98 1.74	.99 1.73	1.01 1.73	1.02 1.72	1.03 1.71	1.04 1.71	1.05 1.70	1.06 1.69	1.08 1.68	1.09 1.68	1.10 1.67	1.12 1.66	1.13 1.65
40	.97 1.75	.97 1.75	.99 1.74	1.00 1.73	1.01 1.72	1.03 1.72	1.04 1.71	1.05 1.70	1.06 1.70	1.07 1.69	1.08 1.68	1.10 1.67	1.11 1.66	1.12 1.66	1.14 1.65	1.15 1.64
41	.99 1.74	1.00 1.73	1.01 1.73	1.02 1.72	1.03 1.71	1.04 1.71	1.06 1.70	1.07 1.69	1.08 1.68	1.09 1.68	1.10 1.67	1.12 1.66	1.13 1.65	1.14 1.64	1.15 1.63	1.17 1.62
42	1.01 1.73	1.02 1.72	1.03 1.72	1.04 1.71	1.05 1.70	1.06 1.69	1.07 1.69	1.09 1.68	1.10 1.67	1.11 1.66	1.12 1.66	1.13 1.65	1.15 1.64	1.16 1.63	1.17 1.62	1.19 1.61

For bevel gears with axes at right angles only.

DIAMETER INCREMENT.—(*Continued.*)

GEAR

PINION	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
12	.42 1.96	.43 1.95	.43 1.95	.44 1.95	.45 1.95	.46 1.95	.47 1.94	.48 1.94	.48 1.94	.49 1.94	.50 1.94	.52 1.93	.53 1.93	.54 1.93	.55 1.92
13	.45 1.95	.46 1.95	.47 1.94	.48 1.94	.48 1.94	.49 1.94	.50 1.94	.51 1.93	.52 1.93	.53 1.93	.54 1.92	.56 1.92	.57 1.92	.58 1.91	.59 1.91
14	.48 1.94	.49 1.94	.50 1.94	.51 1.93	.52 1.93	.53 1.93	.54 1.93	.55 1.92	.56 1.92	.57 1.92	.58 1.91	.59 1.91	.61 1.91	.62 1.90	.63 1 90
15	.52 1.93	.53 1.93	.54 1.93	.54 1.92	.55 1.92	.56 1.92	.57 1.92	.59 1.91	.60 1.91	.61 1.91	.62 1.90	.63 1.90	.65 1.89	.66 1.89	.67 1.88
16	.55 1.92	.56 1.92	.57 1.92	.58 1.91	.59 1.91	.60 1.91	.61 1.90	.62 1.90	.63 1.90	.64 1.89	.66 1.89	.67 1.88	.68 1.88	.70 1.87	.71 1.87
17	.58 1.91	.59 1.91	.60 1.91	.61 1.90	.62 1.90	.63 1.90	.64 1.89	.66 1.89	.67 1.89	.68 1.88	.69 1.88	.71 1.87	.72 1.87	.74 1.86	.75 1.85
18	.61 1.90	.62 1.90	.63 1.90	.64 1.89	.65 1.89	.67 1.89	.68 1.88	.69 1.88	.70 1.87	.72 1.87	.73 1.86	.74 1.86	.76 1 85	.77 1.84	.79 1.84
19	.64 1.89	.65 1.89	.66 1.89	.67 1.88	.69 1.88	.70 1.87	.71 1.87	.72 1.86	.74 1.86	.75 1.85	.76 1.85	.78 1.84	.79 1.84	.81 1.83	.82 1.82
20	.67 1.88	.68 1.88	.69 1.88	.71 1.87	.72 1.87	.73 1.86	.74 1.86	.76 1.85	.77 1.85	.78 1.84	.80 1.83	.81 1.83	.83 1.82	.84 1.81	.86 1.81
21	.70 1.87	.71 1.87	.72 1.86	.74 1.86	.75 1.85	.76 1.85	.77 1.84	.79 1.84	.80 1.83	.82 1.83	.83 1.82	.85 1.81	.86 1.80	.88 1.80	.89 1.79
22	.73 1.86	.74 1.86	.75 1.85	.77 1.85	.78 1.84	.79 1.84	.81 1.83	.82 1.82	.83 1.82	.85 1.81	.86 1.80	.88 1.80	.89 1.79	.91 1.78	.93 1.77
23	.76 1.85	.77 1.85	.78 1.84	.80 1.83	.81 1.83	.82 1.82	.84 1.82	.85 1.81	.86 1.80	.88 1.80	.89 1.79	.91 1.78	.93 1.77	.94 1.76	.96 1.75
24	.79 1.84	.80 1.83	.81 1.83	.83 1.82	.84 1.82	.85 1.81	.87 1.80	.88 1.80	.89 1.79	.91 1.78	.93 1.77	.94 1.76	.96 1.76	.97 1.75	.99 1.74
25	.82 1.83	.83 1.82	.84 1.81	.85 1.81	.87 1.80	.88 1.80	.89 1.79	.91 1.78	.92 1.77	.94 1.77	.95 1.76	.97 1.75	.99 1.74	1.01 1.73	1.02 1.72
26	.84 1.81	.85 1.81	.87 1.80	.88 1.80	.89 1.79	.91 1.78	.92 1.77	.94 1.77	.95 1.76	.97 1.75	.98 1.74	1.00 1.73	1.02 1.72	1.04 1.71	1.05 1.70
27	.87 1.80	.88 1.80	.89 1.79	.91 1.78	.92 1.78	.94 1.77	.95 1.76	.97 1.75	.98 1.74	1.00 1.73	1.01 1.72	1.03 1.71	1.05 1.70	1.06 1.69	1.08 1.68
28	.89 1.79	.91 1.78	.92 1.78	.93 1.77	.95 1.76	.96 1.75	.98 1.75	.99 1.74	1.01 1.73	1.02 1.72	1.04 1.71	1.06 1.70	1.07 1.69	1.09 1.68	1.11 1.66
29	.92 1.78	.93 1.77	.95 1.76	.96 1.75	.97 1.75	.99 1.74	1.00 1.73	1.02 1.72	1.03 1.71	1.05 1.70	1.07 1.69	1.08 1.68	1.10 1.67	1.12 1.66	1.14 1.65
30	.94 1.76	.96 1.76	.98 1.74	.99 1.74	1.00 1.73	1.01 1.72	1.03 1.71	1.04 1.71	1.06 1.70	1.08 1.69	1.09 1.68	1.11 1.66	1.13 1.65	1.14 1.64	1.16 1.63
31	.97 1.75	.98 1.74	1.00 1.73	1.01 1.73	1.02 1.72	1.04 1.71	1.05 1.70	1.07 1.69	1.09 1.68	1.10 1.67	1.12 1.66	1.13 1.65	1.15 1.63	1.17 1.62	1.19 1.61
32	.99 1.74	1.01 1.73	1.02 1.72	1.03 1.71	1.04 1.71	1.06 1.69	1.08 1.68	1.09 1.67	1.11 1.66	1.13 1.65	1.14 1.64	1.16 1.63	1.18 1.62	1.19 1.60	1.21 1.59
33	1.02 1.72	1.03 1.71	1.04 1.71	1.06 1.70	1.08 1.69	1.09 1.68	1.10 1.67	1.12 1.66	1.13 1.65	1.15 1.64	1.17 1.63	1.18 1.61	1.20 1.60	1.22 1.59	1.24 1.57
34	1.04 1.71	1.05 1.70	1.07 1.69	1.08 1.68	1.09 1.67	1.11 1.66	1.12 1.65	1.14 1.64	1.16 1.63	1.17 1.62	1.19 1.61	1.21 1.59	1.22 1.58	1.24 1.57	1.26 1.55
35	1.06 1.70	1.07 1.69	1.09 1.68	1.10 1.67	1.12 1.66	1.13 1.65	1.15 1.64	1.17 1 63	1.18 1.62	1.19 1.60	1.21 1.59	1.23 1.58	1.25 1.57	1.26 1.55	1.28 1.54
36	1.08 1.68	1.10 1.67	1.11 1.66	1.12 1.65	1.14 1.64	1.15 1.63	1.17 1.62	1.18 1.61	1.19 1.60	1.21 1.59	1.23 1.57	1.25 1.56	1.27 1.55	1.28 1.53	1.30 1.52
37	1.10 1.67	1.12 1.66	1.13 1.65	1.14 1.64	1.16 1.63	1.17 1.62	1.19 1.61	1.21 1.60	1.22 1.58	1.24 1.57	1.25 1.56	1.27 1.55	1.29 1.53	1.30 1.52	1.32 1.50
38	1.12 1.66	1.14 1.65	1.15 1.64	1.16 1.63	1.18 1.61	1.20 1.60	1.21 1.59	1.23 1.58	1.24 1.57	1.26 1.56	1.27 1.54	1.29 1.53	1.31 1.51	1.32 1.50	1.34 1.48
39	1.14 1.64	1.16 1.63	1.17 1.62	1.19 1.61	1.20 1.60	1.21 1.59	1.23 1.58	1.25 1.56	1.26 1.55	1 28 1.54	1.29 1.53	1.31 1.51	1.33 1.50	1.34 1.48	1.36 1.47
40	1.16 1.63	1.18 1.62	1.19 1.61	1.20 1.60	1.22 1.59	1.23 1.57	1.25 1.56	1.26 1.55	1.28 1.54	1.30 1.52	1.31 1.51	1.33 1.49	1.35 1.48	1.36 1.46	1.38 1.45
41	1.18 1.61	1.20 1.60	1.21 1.59	1.22 1.58	1.24 1.57	1.25 1.56	1.27 1.55	1.28 1.53	1.30 1.52	1.31 1 51	1.33 1.49	1.35 1.48	1.36 1.46	1.38 1.45	1.40 1.43
42	1.20 1.60	1.21 1.59	1.23 1.58	1.24 1.57	1.26 1.56	1.27 1.54	1.29 1.53	1.30 1.52	1.32 1.51	1.33 1.49	1.35 1.48	1.36 1.46	1.38 1.45	1.40 1.43	1.41 1.41

For bevel gears with axes at right angles only.

DIAMETER INCREMENT.—(*Continued.*)

GEAR

PINION	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27
12	.56 1.92	.58 1.92	.59 1.91	.61 1.91	.63 1.90	.63 1.90	.65 1.89	.67 1.88	.68 1.88	.70 1.87	.72 1.87	.74 1.86	.76 1.85	.79 1.84	.81 1.83
13	.60 1.91	.61 1.90	.63 1.90	.65 1.89	.66 1.89	.68 1.88	.70 1.87	.71 1.87	.73 1.86	.75 1.85	.77 1.84	.80 1.83	.82 1.82	.84 1 81	.87 1.80
14	.65 1.89	.66 1.89	.67 1.88	.69 1.88	.71 1.87	.72 1.86	.74 1.86	.76 1.85	.78 1.84	.80 1.83	.82 1.82	.85 1.81	.87 1.80	.89 1.79	.92 1.78
15	.69 1.88	.70 1.87	.72 1.87	.74 1.86	.75 1.85	.77 1.85	.79 1.84	.81 1.83	.83 1.82	.85 1.81	.87 1.80	.89 1.79	.92 1.78	.94 1.76	.97 1.75
16	.73 1.86	.74 1.86	.76 1.85	.77 1.85	.79 1.84	.81 1.83	.83 1.82	.85 1.81	.88 1.80	.89 1.79	.91 1.77	.94 1.75	.97 1.75	.99 1.74	1.02 1.72
17	.77 1.85	.78 1.84	.79 1.83	.81 1.83	.83 1.82	.86 1.81	.88 1.80	.89 1.79	.91 1.77	.94 1.76	.96 1.75	.99 1.74	1.01 1.73	1.04 1.71	1.07 1.69
18	.80 1.83	.82 1.82	.84 1.81	.86 1.81	.88 1.80	.89 1.79	.91 1.78	.93 1.77	.94 1.76	.98 1.74	1.01 1.73	1.03 1.72	1.06 1.70	1.08 1.68	1.11 1.66
19	.84 1.81	.86 1.81	.88 1.80	.89 1.79	.91 1.78	.93 1.77	.95 1.76	.97 1.75	.99 1.73	1.02 1.72	1.04 1.70	1.07 1.69	1.10 1.67	1.12 1.66	1.15 1.64
20	.88 1.80	.89 1.79	.91 1.78	.93 1.77	.95 1.76	.97 1.75	.99 1.74	1.01 1.72	1.04 1.71	1.06 1.70	1.08 1.68	1.11 1.66	1.14 1.64	1.16 1.63	1.19 1.61
21	.91 1.78	.93 1.77	.94 1.76	.97 1.75	.99 1.74	1.01 1.73	1.03 1.72	1.05 1.70	1.07 1.69	1.10 1.67	1.12 1.65	1.14 1.64	1.17 1.62	1.20 1.60	1.23 1.58
22	.95 1.76	.96 1.75	.98 1.74	1.00 1.73	1.02 1.72	1.04 1.71	1.06 1.69	1.09 1.68	1.11 1.66	1.13 1.65	1.16 1.63	1.18 1.61	1.21 1.59	1.24 1.57	1.26 1.55
23	.98 1.74	1.00 1.73	1.01 1.72	1.04 1.71	1.06 1.70	1.08 1.68	1.10 1.67	1.12 1.66	1.14 1.64	1.17 1.62	1.19 1.61	1.21 1.59	1.24 1.57	1.27 1.55	1.30 1.52
24	1.01 1.72	1.03 1.71	1.05 1.70	1.07 1.69	1.08 1.68	1.11 1.66	1.13 1.65	1.15 1.63	1.17 1.62	1.20 1.60	1.23 1.58	1.25 1.56	1.28 1.54	1.30 1.52	1.33 1.49
25	1.04 1.71	1.06 1.70	1.08 1.68	1.10 1.67	1.12 1.65	1.14 1.64	1.16 1.63	1.18 1.61	1.20 1.59	1.23 1.58	1.26 1.56	1.28 1.54	1.31 1 52	1.33 1.49	1.36 1.47
26	1.07 1.69	1.09 1.68	1.11 1.66	1.13 1.65	1.15 1.64	1.17 1.62	1.19 1.61	1.21 1.59	1.24 1.57	1.26 1.55	1.28 1.53	1.31 1.51	1.34 1.49	1.36 1.47	1.39 1.44
27	1.10 1.67	1.12 1.66	1.14 1.64	1.15 1.63	1.18 1.62	1.20 1.60	1.22 1.58	1.24 1.57	1.27 1.54	1.29 1.53	1.31 1.51	1.34 1.49	1.36 1.46	1.39 1.44	1.41 1.41
28	1.13 1.65	1.14 1.64	1.16 1.62	1.19 1.61	1.21 1.59	1.23 1.58	1.25 1.56	1.27 1.54	1.29 1.53	1.32 1.51	1.34 1.48	1.36 1.46	1.39 1.44	1.41 1.41	
29	1.15 1.63	1.17 1.62	1.19 1.60	1.21 1.59	1.23 1.57	1.26 1.56	1.28 1.54	1.30 1.52	1.32 1.50	1.34 1.48	1.37 1.46	1.39 1.44	1.41 1.41		
30	1.18 1.61	1.20 1.60	1.22 1.59	1.24 1.57	1.26 1.55	1.28 1.54	1.30 1.52	1.32 1.50	1.35 1.48	1.37 1.46	1.39 1.44	1.41 1.41			
31	1.21 1.59	1.23 1.58	1.25 1.57	1.26 1.55	1.28 1.53	1.31 1.51	1.33 1.50	1.35 1.48	1.37 1.46	1.39 1.44	1.41 1.41				
32	1.23 1.58	1.25 1.56	1.27 1.54	1.29 1.53	1.31 1.51	1.33 1.50	1.35 1.48	1.37 1.46	1.39 1.44	1.41 1.41					
33	1.25 1.56	1.27 1.54	1.29 1.53	1.31 1.51	1.33 1.49	1.35 1.48	1.37 1.45	1.39 1.43	1.41 1.41						
34	1.28 1.54	1.30 1.52	1.31 1.51	1.33 1.49	1.35 1.48	1.37 1.45	1.39 1.43	1.41 1.41							
35	1.30 1.52	1.32 1.50	1.34 1.49	1.35 1.48	1.38 1.45	1.39 1.43	1.41 1.41								
36	1.32 1.50	1.34 1.49	1.36 1.47	1.38 1.45	1.40 1.43	1.41 1.41									
37	1.34 1.49	1.36 1.47	1.38 1.45	1.40 1.43	1.41 1.41										
38	1.36 1.47	1.38 1.45	1.40 1.43	1.41 1.41											
39	1.38 1.45	1.40 1.43	1.41 1.41												
40	1.40 1.43	1.41 1.41													
41	1.41 1.41														

For bevel gears with axes at right angles only.

DIAMETER INCREMENT.—(*Continued.*)

GEAR

PINION	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
12	.84 1.82	.87 1.80	.89 1.79	.93 1.77	.96 1.76	.99 1.74	1.03 1.71	1.07 1.69	1.11 1.66	1.15 1.63	1.20 1.60	1.25 1.56	1.30 1.52	1.36 1.47	1.41 1.41
13	.89 1.79	.92 1.77	.95 1.76	.98 1.74	1.02 1.72	1.05 1.70	1.09 1.68	1.13 1.65	1.17 1.62	1.21 1.59	1.26 1.55	1.31 1.51	1.36 1.47	1.41 1.41	
14	.95 1.76	.98 1.75	1.01 1.73	1.04 1.71	1.07 1.69	1.11 1.66	1.15 1.64	1.19 1.61	1.23 1.58	1.27 1.54	1.32 1.50	1.36 1.46	1.41 1.41		
15	1.00 1.73	1.03 1.71	1.06 1.70	1.09 1.68	1.13 1.65	1.16 1.63	1.20 1.60	1.24 1.57	1.28 1.54	1.32 1.50	1.37 1.46	1.41 1.41			
16	1.05 1.70	1.08 1.68	1.11 1.66	1.14 1.64	1.18 1.62	1.21 1.59	1.25 1.56	1.29 1.53	1.33 1.49	1.37 1.46	1.41 1.41				
17	1.09 1.67	1.12 1.65	1.16 1.63	1.19 1.61	1.22 1.58	1.26 1.55	1.30 1.52	1.33 1.49	1.37 1.45	1.41 1.41					
18	1.14 1.64	1.17 1.62	1.20 1.60	1.23 1.57	1.27 1.55	1.30 1.52	1.34 1.49	1.38 1.45	1.41 1.41						
19	1.18 1.61	1.21 1.59	1.24 1.57	1.27 1.54	1.31 1.51	1.34 1.48	1.38 1.45	1.41 1.41							
20	1.22 1.59	1.25 1.56	1.28 1.54	1.31 1.51	1.35 1.48	1.38 1.45	1.41 1.41								
21	1.26 1.56	1.29 1.53	1.32 1.50	1.35 1.48	1.38 1.45	1.41 1.41									
22	1.29 1.53	1.32 1.50	1.35 1.47	1.38 1.45	1.41 1.41										
23	1.33 1.50	1.35 1.47	1.38 1.44	1.41 1.41											
24	1.36 1.47	1.39 1.44	1.41 1.41												
25	1.39 1.44	1.41 1.41													
26	1.41 1.41														

For bevel gears with axes at right angles only.

TABLES FOR ANGLES OF EDGE AND ANGLES OF FACE.

The following tables have been computed for convenience in calculating data for bevel gears with axes at right angle. They *do not* hold good for bevel gears with axes at any other angle.

To use the tables the number of teeth in gear and pinion must be known.

Having located the number of teeth in the gear on the horizontal line of figures at the top of the table, and the number of teeth in the pinion on the vertical line of figures on the left-hand side, we follow the two columns to the square formed by their intersections.

The two angles found in the same square are the respective angles for gear and pinion. The tables are so arranged that the angle belonging to the gear is always placed above the angle for the pinion.

The cutting angle for a gear or pinion is equal to the angle of face of its mate as given in the following tables.

ANGLE OF EDGE.

GEAR

PINION

	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
12	80°33′ 9°27′	80°25′ 9°35′	80°16′ 9°44′	80°8′ 9°52′	79°59′ 10°1′	79°51′ 10°9′	79°42′ 10°18′	79°32′ 10°28′	79°23′ 10°37′	79°13′ 10°47′	79°3′ 10°57′	78°52′ 11°8′	78°41′ 11°19′	78°30′ 11°30′	78°19′ 11°41′	78°7′ 11°53′
13	79°46′ 10°14′	79°37′ 10°23′	79°29′ 10°31′	79°20′ 10°40′	79°11′ 10°49′	79°1′ 10°59′	78°51′ 11°9′	78°41′ 11°19′	78°31′ 11°29′	78°20′ 11°40′	78°9′ 11°51′	77°58′ 12°2′	77°46′ 12°14′	77°34′ 12°26′	77°22′ 12°38′	77°9′ 12°51′
14	79°0′ 11°0′	78°51′ 11°9′	78°41′ 11°19′	78°32′ 11°28′	78°22′ 11°38′	78°11′ 11°49′	78°1′ 11°59′	77°51′ 12°9′	77°40′ 12°20′	77°28′ 12°32′	77°17′ 12°43′	77°5′ 12°55′	76°52′ 13°8′	76°39′ 13°21′	76°26′ 13°34′	76°12′ 13°48′
15	78°14′ 11°46′	78°4′ 11°56′	77°54′ 12°6′	77°44′ 12°16′	77°34′ 12°26′	77°23′ 12°37′	77°12′ 12°48′	77°0′ 13°0′	76°48′ 13°12′	76°36′ 13°24′	76°24′ 13°36′	76°11′ 13°49′	75°58′ 14°2′	75°44′ 14°16′	75°30′ 14°30′	75°15′ 14°45′
16	77°28′ 12°32′	77°18′ 12°42′	77°7′ 12°53′	76°57′ 13°3′	76°45′ 13°15′	76°34′ 13°26′	76°22′ 13°38′	76°10′ 13°50′	75°58′ 14°2′	75°45′ 14°15′	75°32′ 14°28′	75°18′ 14°42′	75°4′ 14°56′	74°49′ 15°11′	74°35′ 15°25′	74°19′ 15°41′
17	76°43′ 13°17′	76°32′ 13°28′	76°21′ 13°39′	76°10′ 13°50′	75°58′ 14°2′	75°45′ 14°14′	75°33′ 14°27′	75°21′ 14°39′	75°8′ 14°52′	74°54′ 15°6′	74°40′ 15°20′	74°25′ 15°35′	74°11′ 15°49′	73°56′ 16°4′	73°40′ 16°20′	73°24′ 16°36′
18	75°58′ 14°2′	75°46′ 14°14′	75°35′ 14°25′	75°23′ 14°37′	75°10′ 14°50′	74°58′ 15°2′	74°45′ 15°15′	74°31′ 15°29′	74°17′ 15°43′	74°3′ 15°57′	73°49′ 16°11′	73°33′ 16°27′	73°18′ 16°42′	73°2′ 16°58′	72°45′ 17°15′	72°29′ 17°31′
19	75°13′ 14°47′	75°1′ 14°59′	74°49′ 15°11′	74°36′ 15°24′	74°23′ 15°37′	74°10′ 15°50′	73°56′ 16°4′	73°42′ 16°18′	73°28′ 16°32′	73°13′ 16°47′	72°58′ 17°2′	72°42′ 17°18′	72°20′ 17°34′	72°9′ 17°51′	71°52′ 18°8′	71°34′ 18°26′
20	74°29′ 15°31′	74°16′ 15°44′	74°3′ 15°57′	73°50′ 16°10′	73°37′ 16°23′	73°23′ 16°42′	73°9′ 16°51′	72°54′ 17°6′	72°39′ 17°21′	72°23′ 17°37′	72°7′ 17°53′	71°51′ 18°9′	71°34′ 18°26′	71°16′ 18°44′	70°59′ 19°1′	70°40′ 19°20′
21	73°45′ 16°15′	73°32′ 16°28′	73°18′ 16°42′	73°4′ 16°56′	72°50′ 17°10′	72°36′ 17°24′	72°21′ 17°39′	72°6′ 17°54′	71°50′ 18°10′	71°34′ 18°26′	71°17′ 18°43′	71°0′ 19°0′	70°43′ 19°17′	70°24′ 19°36′	70°6 19°54′	69°46 20°14′
22	73°1′ 16°59′	72°47′ 17°13′	72°33′ 17°27′	72°19′ 17°41′	72°4′ 17°56′	71°49′ 18°11′	71°34′ 18°26′	71°18′ 18°42′	71°2′ 18°58′	70°45′ 19°15′	70°28′ 19°34′	70°10′ 19°50′	69°52′ 20°8′	69°33′ 20°27′	69°13′ 20°47′	68°54′ 21°6′
23	72°17′ 17°43′	72°3′ 17°57′	71°49′ 18°11′	71°34′ 18°26′	71°19′ 18°41′	71°3′ 18°57′	70°47′ 19°13′	70°30′ 19°30′	70°14′ 19°46′	69°57′ 20°3′	69°39′ 20°21′	69°20′ 20°40′	69°2′ 20°58′	68°42′ 21°18′	68°22′ 21°38′	68°2′ 21°58′
24	71°34′ 18°26′	71°19′ 18°41′	71°5′ 18°55′	70°49′ 19°11′	70°34′ 19°26′	70°17′ 19°43′	70°1′ 19°59′	69°44′ 20°16′	69°26′ 20°34′	69°9′ 20°51′	68°50′ 21°10′	68°31′ 21°29′	68°12′ 21°48′	67°52′ 22°8′	67°31′ 22°29′	67°10′ 22°50′
25	70°51′ 19°9′	70°36′ 19°24′	70°21′ 19°39′	70°5′ 19°55′	69°49′ 20°11′	69°32′ 20°28′	69°15′ 20°45′	68°57′ 21°3′	68°40′ 21°20′	68°21′ 21°39′	68°3′ 21°57′	67°43′ 22°17′	67°23′ 22°37′	67°2′ 22°58′	66°41′ 23°19′	66°19′ 23°41′
26	70°9′ 19°51′	69°53′ 20°7′	69°37′ 20°23′	69°21′ 20°39′	69°4′ 20°56′	68°48′ 21°12′	68°30′ 21°30′	68°12′ 21°48′	67°54′ 22°6′	67°34′ 22°26′	67°15′ 22°45′	66°55′ 23°5′	66°34′ 23°26′	66°13′ 23°47′	65°51′ 24°9′	65°29 24°31
27	69°27′ 20°33′	69°10′ 20°50′	68°54′ 21°6′	68°38′ 21°22′	68°20′ 21°40′	68°3′ 21°57′	67°45′ 22°15′	67°26′ 22°34′	67°8′ 22°52′	66°48′ 23°12′	66°28′ 23°32′	66°7′ 23°53′	65°46′ 24°14′	65°25′ 24°35′	65°2′ 24°58′	64°39′ 25°21′
28	68°45′ 21°15′	68°29′ 21°31′	68°12′ 21°48′	67°55′ 22°5′	67°37′ 22°23′	67°19′ 22°41′	67°1′ 22°59′	66°42′ 23°18′	66°22′ 23°38′	66°2′ 23°58′	65°42′ 24°18′	65°21′ 24°39′	65°0′ 25°1′	64°39′ 25°23′	64°14′ 25°46′	63°50′ 26°10′
29	68°4′ 21°56′	67°47′ 22°13′	67°30′ 22°30′	67°12′ 22°48′	66°54′ 23°6′	66°36′ 23°24′	66°17′ 23°43′	65°57′ 24°3′	65°37′ 24°23′	65°16′ 24°44′	64°55′ 25°5′	64°34′ 25°26′	64°12′ 25°48′	63°50′ 26°10′	63°26′ 26°34′	63°2′ 26°58′
30	67°23′ 22°37′	67°6′ 22°54′	66°48′ 23°12′	66°30′ 23°30′	66°12′ 23°48′	65°52′ 24°8′	65°33′ 24°27′	65°14′ 24°46′	64°53′ 25°7′	64°32′ 25°28′	64°10′ 25°50′	63°49′ 26°11′	63°26′ 26°34′	63°3′ 26°57′	62°39′ 27°21′	62°14′ 27°46′
31	66°42′ 23°18′	66°25′ 23°35′	66°6′ 23°54′	65°48′ 24°12′	65°29′ 24°31′	65°10′ 24°50′	64°50′ 25°10′	64°30′ 25°30′	64°9′ 25°51′	63°48′ 26°12′	63°26′ 26°34′	63°3′ 26°57′	62°40′ 27°20′	62°18′ 27°42′	61°53′ 28°7′	61°28′ 28°32′
32	66°2′ 23°58′	65°44′ 24°16′	65°26′ 24°34′	65°7′ 24°53′	64°48′ 25°12′	64°28′ 25°32′	64°8′ 25°52′	63°47′ 26°13′	63°26′ 26°34′	63°4′ 26°56′	62°42′ 27°18′	62°19′ 27°41′	61°56′ 28°4′	61°32′ 28°28′	61°7′ 28°53′	60°41′ 29°19′
33	65°23′ 24°37′	65°4′ 24°56′	64°45′ 25°15′	64°26′ 25°34′	64°7′ 25°53′	63°47′ 26°13′	63°26′ 26°34′	63°5′ 26°55′	62°43′ 27°17′	62°21′ 27°39′	61°58′ 28°2′	61°35′ 28°25′	61°11′ 28°49′	60°47′ 29°13′	60°21′ 29°39′	59°56′ 30°4′
34	64°43′ 25°17′	64°25′ 25°35′	64°5′ 25°55′	63°46′ 26°14′	63°26′ 26°34′	63°5′ 26°55′	62°45′ 27°15′	62°23′ 27°37′	62°1′ 27°59′	61°38′ 28°22′	61°15′ 28°45′	60°52′ 29°8′	60°28′ 29°32′	60°3′ 29°57′	59°37′ 30°23′	59°11′ 30°49′
35	64°5′ 25°55′	63°45′ 26°15′	63°26′ 26°34′	63°6′ 26°54′	62°46′ 27°14′	62°25′ 27°35′	62°4′ 27°56′	61°42′ 28°18′	61°19′ 28°41′	60°57′ 29°3′	60°33′ 29°27′	60°9′ 29°51′	59°45′ 30°15′	59°19′ 30°41′	58°53′ 31°7′	58°27′ 31°33′
36	63°26′ 26°34′	63°7′ 26°53′	62°47′ 27°13′	62°27′ 27°33′	62°6′ 27°54′	61°45′ 28°15′	61°23′ 28°37′	61°1′ 28°59′	60°38′ 29°22′	60°15′ 29°45′	59°51′ 30°9′	59°27′ 30°33′	59°2′ 30°58′	58°37′ 31°23′	58°10′ 31°50′	57°43′ 32°17′
37	62°48′ 27°12′	62°28′ 27°32′	62°8′ 27°52′	61°48′ 28°12′	61°27′ 28°33′	61°5′ 28°55′	60°44′ 29°16′	60°21′ 29°39′	59°58′ 30°2′	59°35′ 30°25′	59°10′ 30°50′	58°46′ 31°14′	58°20′ 31°40′	57°54′ 32°6′	57°28′ 32°32′	57°1′ 32°59′
38	62°11′ 27°49′	61°51′ 28°9′	61°30′ 28°30′	61°9′ 28°51′	60°48′ 29°12′	60°26′ 29°34′	60°4′ 29°56′	59°41′ 30°19′	59°18′ 30°42′	58°54′ 31°6′	58°30′ 31°30′	58°5′ 31°55′	57°39′ 32°21′	57°13′ 32°47′	56°46′ 33°14′	56°19′ 33°41′
39	61°33′ 28°27′	61°13′ 28°47′	60°53′ 29°7′	60°31′ 29°29′	60°10′ 29°50′	59°48′ 30°12′	59°25′ 30°35′	59°2′ 30°58′	58°39′ 31°21′	58°14′ 31°46′	57°50′ 32°10′	57°24′ 32°36′	56°58′ 33°2′	56°32′ 33°28′	56°6′ 33°54′	55°37′ 34°23′
40	60°57′ 29°3′	60°36′ 29°24′	60°15′ 29°45′	59°53′ 30°7′	59°32′ 30°28′	59°10′ 30°50′	58°47′ 31°13′	58°24′ 31°36′	58°0′ 32°0′	57°35′ 32°25′	57°10′ 32°50′	56°44′ 33°16′	56°19′ 33°41′	55°52′ 34°8′	53°24′ 34°35′	54°57′ 35°3′
41	60°20′ 29°40′	60°0′ 30°0′	59°39′ 30°21′	59°17′ 30°43′	58°55′ 31°5′	58°32′ 31°28′	58°9′ 31°51′	57°45′ 32°15′	57°21′ 32°39′	56°57′ 33°3′	56°32′ 33°28′	56°6′ 33°54′	55°39′ 34°21′	55°12′ 34°48′	54°44′ 35°16′	54°16 35°44′
42	59°45′ 30°15′	59°24′ 30°36′	59°3′ 30°57′	58°40′ 31°20′	58°18′ 31°42′	57°55′ 32°5′	57°32′ 32°28′	57°8′ 32°52′	56°43′ 33°17′	56°19′ 33°41′	55°53′ 34°7′	55°27′ 34°33′	55°0′ 35°0′	54°33′ 35°27′	54°5′ 35°55′	53°37′ 36°23′

For Bevel Gears with axes at right angles.

Angle for gear above, for pinion below.

ANGLE OF EDGE.

GEAR

	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
12	77°34′ 12°6′	77°42′ 12°18′	77°28′ 12°32′	77°15′ 12°45′	77°0′ 13°0′	76°46′ 13°14′	76°30′ 13°30′	76°14′ 13°46′	75°58′ 14°2′	75°41′ 14°19′	75°23′ 14°37′	75°4′ 14°56′	74°45′ 15°15′	74°25′ 15°35′	74°3′ 15°57′
13	76°56′ 13°4′	76°42′ 13°18′	76°28′ 13°32′	76°13′ 13°47	75°58′ 14°2′	75°42′ 14°18′	75°26′ 14°34′	75°8′ 14°52′	74°51′ 15°9′	74°32′ 15°28′	74°13′ 15°47′	73°53′ 16°7′	73°32′ 16°28′	73°11′ 16°49′	72°48′ 17°12′
14	75°58′ 14°2′	75°43′ 14°17′	75°28′ 14°32′	75°12′ 14°48′	74°56′ 15°4′	74°39′ 15°21′	74°21′ 15°39′	74°3′ 15°57′	73°44′ 16°16′	73°25′ 16°35′	73°4′ 16°56′	72°43′ 17°17′	72°21′ 17°39′	71°58′ 18°2′	71°34′ 18°26′
15	75°0′ 15°0′	74°44′ 15°16′	74°29′ 15°31′	74°12′ 15°48′	73°55′ 16°5′	73°37′ 16°23′	73°18′ 16°42′	72°59′ 17°1′	72°39′ 17°21′	72°18′ 17°42′	71°56′ 18°4′	71°34′ 18°26′	71°10′ 18°50′	70°46′ 19°14′	70°21′ 19°39′
16	74°3′ 15°57′	73°47′ 16°13′	73°30′ 16°30′	73°12′ 16°48′	72°54′ 17°6′	72°35′ 17°25′	72°15′ 17°45′	71°55′ 18°5′	71°34′ 18°26′	71°12′ 18°48′	70°49′ 19°11′	70°26′ 19°34′	70°1′ 19°59′	69°35′ 20°25′	69°9′ 20°51′
17	73°7′ 16°53′	72°49′ 17°11′	72°31′ 17°29′	72°13′ 17°47′	71°54′ 18°6′	71°34′ 18°26′	71°13′ 18°47′	70°52′ 19°8′	70°30′ 19°30′	70°7′ 19°53′	69°43′ 20°17′	69°17′ 20°43′	68°52′ 21°8′	68°25′ 21°34′	67°58′ 22°2′
18	72°11′ 17°49′	71°53′ 18°7′	71°34′ 18°26′	71°15′ 18°45′	70°54′ 19°6′	70°33′ 19°27′	70°12′ 19°48′	69°50′ 20°10′	69°26′ 20°34′	69°3′ 20°57′	68°38′ 21°22′	68°12′ 21°48′	67°45′ 22°15′	67°17′ 22°43′	66°48′ 23°12′
19	71°15′ 18°45′	70°57′ 19°1′	70°37′ 19°23′	70°17′ 19°43′	69°56′ 20°4′	69°34′ 20°26′	69°12′ 20°48′	68°48′ 21°12′	68°25′ 21°35′	67°59′ 22°1′	67°34′ 22°26′	67°6′ 22°54′	66°35′ 23°22′	66°10′ 23°50′	65°39′ 24°21′
20	70°21′ 19°39′	70°1′ 19°59′	69°41′ 20°19′	69°19′ 20°41′	68°57′ 21°3′	68°35′ 21°25′	68°12′ 21°48′	67°48′ 22°12′	67°23′ 22°37′	66°57′ 23°3′	66°30′ 23°30′	66°2′ 23°58′	65°33′ 24°27′	65°3′ 24°57′	64°32′ 25°28′
21	69°26′ 20°34′	69°6′ 20°54′	68°45′ 21°15′	68°23′ 21°37′	68°0′ 22°0′	67°37′ 22°23′	67°13′ 22°47′	66°48′ 23°12′	66°22′ 23°38′	65°55′ 24°5′	65°28′ 24°32′	64°59′ 25°1′	64°29′ 25°31′	63°58′ 26°2′	63°26′ 26°34′
22	68°33′ 21°27′	68°12′ 21°48′	67°50′ 22°10′	67°27′ 22°33′	67°4′ 22°56′	66°40′ 23°20′	66°15′ 23°45′	65°49′ 24°11′	65°23′ 24°37′	64°55′ 25°5′	64°26′ 25°34′	63°57′ 26°3′	63°26′ 26°34′	62°54′ 27°6′	62°21′ 27°39′
23	67°41′ 22°19′	67°18′ 22°42′	66°55′ 23°5′	66°32′ 23°28′	66°8′ 23°52′	65°44′ 24°16′	65°18′ 24°42′	64°51′ 25°9′	64°24′ 25°36′	63°55′ 26°5′	63°26′ 26°34′	62°56′ 27°4′	62°24′ 27°36′	61°52′ 28°8′	61°18′ 28°42′
24	66°48′ 23°12′	66°26′ 23°34′	66°2′ 23°58′	65°38′ 24°22′	65°14′ 24°46′	64°48′ 25°12′	64°22′ 25°38′	63°54′ 26°6′	63°26′ 26°34′	62°57′ 27°3′	62°27′ 27°33′	61°56′ 28°4′	61°23′ 28°37′	60°50′ 29°10′	60°15′ 29°45′
25	65°57′ 24°3′	65°33′ 24°27′	65°9′ 24°51′	64°45′ 25°15′	64°20′ 25°40′	63°53′ 26°7′	63°26′ 26°34′	62°58′ 27°2′	62°29′ 27°31′	61°59′ 28°1′	61°29′ 28°31′	60°57′ 29°3′	60°24′ 29°36′	59°50′ 30°10′	59°14′ 30°46′
26	65°6′ 24°54′	64°42′ 25°18′	64°18′ 25°42′	63°52′ 26°8′	63°26′ 26°34′	62°59′ 27°1′	62°31′ 27°29′	62°3′ 27°57′	61°33′ 28°27′	61°3′ 28°57′	60°31′ 29°29′	59°59′ 30°1′	59°25′ 30°35′	58°50′ 31°10′	58°14′ 31°46′
27	64°16′ 25°44′	63°51′ 26°9′	63°26′ 26°34′	63°0′ 27°0′	62°34′ 27°26′	62°6′ 27°54′	61°38′ 28°22′	61°8′ 28°52′	60°38′ 29°22′	60°7′ 29°53′	59°35′ 30°25′	59°2′ 30°58′	58°28′ 31°32′	57°53′ 32°7′	57°16′ 32°44′
28	63°26′ 26°34′	63°1′ 26°59′	62°36′ 27°24′	62°9′ 27°51′	61°42′ 28°18′	61°14′ 28°46′	60°45′ 29°15′	60°15′ 29°45′	59°45′ 30°15′	59°13′ 30°47′	58°40′ 31°20′	58°7′ 31°53′	57°32′ 32°28′	56°56′ 33°4′	56°19′ 33°41′
29	62°37′ 27°23′	62°12′ 27°48′	61°45′ 28°15′	61°19′ 28°41′	60°51′ 29°9′	60°23′ 29°37′	59°53′ 30°7′	59°23′ 30°37′	58°52′ 31°8′	58°19′ 31°41′	57°46′ 32°14′	57°12′ 32°48′	56°37′ 33°23′	56°0′ 34°0′	55°23′ 34°37′
30	61°49′ 28°11′	61°23′ 28°37′	60°57′ 29°3′	60°29′ 29°31′	60°1′ 29°59	59°32′ 30°28′	59°2′ 30°58′	58°32′ 31°28′	58°0′ 32°0′	57°27′ 32°33′	56°53′ 33°7′	56°19′ 33°41′	55°43′ 34°17′	55°5′ 34°55′	54°28′ 35°32′
31	61°2′ 28°58′	60°36′ 29°24′	60°6′ 29°54′	59°41′ 30°19′	59°12′ 30°48′	58°42′ 31°18′	58°12′ 31°48′	57°41′ 32°19′	57°8′ 32°52′	56°36′ 33°24′	56°1′ 33°59′	55°26′ 34°34′	54°50′ 35°10′	54°12′ 35°48′	53°34′ 36°26′
32	60°15′ 29°45	59°48′ 30°12′	59°21′ 30°39′	58°52′ 31°8′	58°24′ 31°26′	57°54′ 32°6′	57°23′ 32°37′	56°52′ 33°8′	56°19′ 33°41′	55°45′ 34°15′	55°11′ 34°49′	54°35′ 35°25′	53°58′ 36°2′	53°21′ 36°39′	52°42′ 37°18′
33	59°29′ 30°31′	59°2′ 30°58′	58°34′ 31°26′	58°5′ 31°55′	57°36′ 32°24′	57°6′ 32°54′	56°34′ 33°26′	56°2′ 33°58′	55°30′ 34°30′	54°56′ 35°4′	54°21′ 35°39′	53°45′ 36°15′	53°8′ 36°52′	52°29′ 37°31′	51°50′ 38°9′
34	58°44′ 31°16′	58°16′ 31°44′	57°48′ 32°12′	57°19′ 32°41′	56°49′ 33°11′	56°19′ 33°41′	55°47′ 34°13′	55°15′ 34°45′	54°41′ 35°19′	54°7′ 35°53′	53°32′ 36°28′	52°52′ 37°8′	52°18′ 37°42′	51°40′ 38°20′	51°0′ 39°0′
35	58°0′ 32°0′	57°32′ 32°28′	57°3′ 32°57′	56°33′ 33°27′	56°3′ 33°57′	55°32′ 34°28′	55°0′ 35°0′	54°28′ 35°32′	53°54′ 36°6′	53°20′ 36°40′	52°44′ 37°16′	52°8′ 37°52′	51°30′ 38°30′	50°51′ 39°9′	50°12′ 39°48′
36	57°16′ 32°44′	56°48′ 33°12′	56°19′ 33°41′	55°49′ 34°11′	55°18′ 34°42′	54°47′ 35°13′	54°15′ 33°45′	53°42′ 36°18′	53°8′ 36°52′	52°33′ 37°27′	51°57′ 38°3′	51°20′ 38°40′	50°43′ 39°17′	50°4′ 39°56′	49°24′ 40°36′
37	56°32′ 33°28′	56°4′ 33°56	55°35′ 34°25′	55°5′ 34°55′	54°34′ 35°26′	54°2′ 35°58′	53°30′ 36°30′	52°56′ 37°4′	52°23′ 37°37′	51°47′ 38°13′	51°12′ 38°48′	50°35′ 39°25′	49°56′ 40°4′	49°17′ 40°43′	48°37′ 41°23′
38	55°51′ 34°9′	55°21′ 34°39′	54°52′ 35°8′	54°23′ 35°37′	53°51′ 36°9′	53°19′ 36°42′	52°46′ 37°14′	52°12′ 37°48′	51°38′ 38°22′	51°3′ 38°57′	50°27′ 39°33′	49°49′ 40°11′	49°11′ 40°49′	48°32′ 41°28′	47°52′ 42°8′
39	55°9′ 34°51′	54°39′ 35°21′	54°10′ 35°50′	53°39′ 36°21′	53°7′ 36°53′	52°36′ 37°24′	52°3′ 37°57′	51°29′ 38°31′	50°54′ 39°6′	50°19′ 39°41′	49°42′ 40°18′	49°5′ 40°55′	48°27′ 41°33′	47°48′ 42°12′	47°7′ 42°53′
40	54°28′ 35°32′	53°58′ 36°2′	53°28′ 36°32′	52°58′ 37°2′	52°26′ 37°34′	51°54′ 38°6′	51°20′ 38°40′	50°46′ 39°14′	50°12′ 39°48′	49°36′ 40°24′	48°59′ 41°1′	48°22′ 41°38′	47°44′ 42°16′	47°5′ 42°55′	46°24′ 43°36′
41	53°48′ 36°12′	53°17′ 36°43′	52°48′ 37°12′	52°16′ 37°44′	51°45′ 38°15′	51°12′ 38°48′	50°39′ 39°21′	50°5′ 39°55′	49°30′ 40°30′	48°54′ 41°6′	48°17′ 41°43′	47°40′ 42°20′	47°1′ 42°59′	46°22′ 43°38′	45°41′ 44°19′
42	53°3′ 36°52′	52°38′ 37°22′	52°8′ 37°52′	51°36′ 38°24′	51°4′ 38°56′	50°32′ 39°28′	49°58′ 40°2′	49°24′ 40°36′	48°49′ 41°11′	48°13′ 41°47′	47°36′ 42°24′	46°59′ 43°1′	46°20′ 43°40′	45°40′ 44°20′	45°

PINION

For Bevel Gears with axes at right angles.

Angle for gear above, for pinion below.

ANGLE OF EDGE.

GEAR

PINION

	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27
12	73°41′ 16°19′	73°15′ 16°42′	72°54′ 17°6′	72°28′ 17°32′	72°2′ 17°58′	71°34′ 18°26′	71°5′ 18°55′	70°34′ 19°26′	70°1′ 19°59′	69°26′ 20°34′	68°50′ 21°10′	68°12′ 21°48′	67°31′ 22°29′	66°48′ 23°12′	66°2′ 23°58′
13	72°25′ 17°35′	71°59′ 18°1′	71°34′ 18°26′	71°7′ 18°53′	70°39′ 19°21′	70°9′ 19°51′	69°37′ 20°23′	69°5′ 20°55′	68°30′ 21°30′	67°53′ 22°7′	67°15′ 22°45′	66°34′ 23°26′	65°51′ 24°9′	65°6′ 24°54′	64°17′ 25°43′
14	71°9′ 18°51′	70°43′ 19°17′	70°15′ 19°45′	69°46′ 20°14′	69°16′ 20°44′	68°45′ 21°15′	68°12′ 21°48′	67°37′ 22°23′	67°0′ 23°0′	66°23′ 23°37′	65°42′ 24°18′	64°59′ 25°1′	64°14′ 25°46′	63°26′ 26°34′	62°36′ 27°24′
15	69°54′ 20°6′	69°26′ 20°34′	68°58′ 21°2′	68°28′ 21°32′	67°56′ 22°4′	67°23′ 22°37′	66°48′ 23°12′	66°12′ 23°48′	65°33′ 24°27′	64°53′ 25°7′	64°10′ 25°50′	63°26′ 26°34′	62°39′ 27°21′	61°49′ 28°11′	60°57′ 29°3′
16	68°41′ 21°19′	68°12′ 21°48′	67°42′ 22°18′	67°10′ 22°50′	66°37′ 23°23′	66°2′ 23°58′	65°26′ 24°34′	64°48′ 25°12′	64°8′ 25°52′	63°26′ 26°34′	62°42′ 27°18′	61°56′ 28°4′	61°7′ 28°53′	60°15′ 29°45′	59°21′ 30°39′
17	67°29′ 22°31′	66°58′ 23°2′	66°27′ 23°33′	65°54′ 24°6′	65°19′ 24°41′	64°43′ 25°17′	64°6′ 25°54′	63°26′ 26°34′	62°45′ 27°15′	62°1′ 27°59′	61°15′ 28°45′	60°28′ 29°32′	59°37′ 30°23′	58°44′ 31°16′	57°48′ 32°12′
18	66°18′ 23°42′	65°46′ 24°14′	65°14′ 24°46′	64°39′ 25°21′	64°4′ 25°56′	63°26′ 26°34′	62°47′ 27°13′	62°6′ 27°54′	61°23′ 28°37′	60°38′ 29°22′	59°51′ 30°9′	59°2′ 30°58′	58°10′ 31°50′	57°16′ 32°44′	56°19′ 33°41′
19	65°8′ 24°52′	64°36′ 25°24′	64°2′ 25°58′	63°26′ 26°34′	62°49′ 27°11′	62°10′ 27°50′	61°30′ 28°30′	60°48′ 29°12′	60°4′ 29°56′	59°18′ 30°42′	58°30′ 31°30′	57°39′ 32°21′	56°46′ 33°14′	55°51′ 34°9′	54°52′ 35°8′
20	64°0′ 26°0′	63°26′ 26°34′	62°51′ 27°9′	62°14′ 27°46′	61°37′ 28°23′	60°57′ 29°3′	60°15′ 29°45′	59°32′ 30°28′	58°47′ 31°13′	58°0′ 32°0′	57°10′ 32°50′	56°19′ 33°41′	55°24′ 34°36′	54°28′ 35°32′	53°28′ 36°32′
21	62°53′ 27°7′	62°18′ 27°42′	61°42′ 28°18′	61°4′ 28°56′	60°25′ 29°35′	59°45′ 30°15′	59°2′ 30°58′	58°18′ 31°42′	57°32′ 32°28′	56°43′ 33°17′	55°53′ 34°7′	55°0′ 35°0′	54°5′ 35°55′	53°7′ 36°53′	52°8′ 37°52′
22	61°47′ 28°13′	61°11′ 28°49′	60°34′ 29°26′	59°56′ 30°4′	59°15′ 30°45′	58°34′ 31°26′	57°51′ 32°9′	57°6′ 32°54′	56°19′ 33°41′	55°29′ 34°31′	54°38′ 35°22′	53°45′ 36°15′	52°49′ 37°11′	51°50′ 38°10′	50°49′ 39°11′
23	60°42′ 29°18′	60°6′ 29°54′	59°28′ 30°32′	58°49′ 31°11′	58°8′ 31°52′	57°25′ 32°35′	56°41′ 33°19′	55°55′ 34°5′	55°7′ 34°53′	54°18′ 35°42′	53°26′ 36°34′	52°31′ 37°29′	51°35′ 38°25′	50°36′ 39°24′	49°34′ 40°26′
24	59°39′ 30°21′	59°2′ 30°58′	58°23′ 31°37′	57°44′ 32°16′	57°2′ 32°58′	56°19′ 33°41′	55°33′ 34°27′	54°47′ 35°13′	53°58′ 36°2′	53°8′ 36°52′	52°15′ 37°45′	51°20′ 38°40′	50°23′ 39°37′	49°24′ 40°36′	48°22′ 41°38′
25	58°38′ 31°22′	58°0′ 32°0′	57°20′ 32°40′	56°40′ 33°20′	55°57′ 34°3′	55°13′ 34°47′	54°28′ 35°32′	53°40′ 36°20′	52°51′ 37°9′	52°0′ 38°0′	51°7′ 38°53′	50°12′ 39°48′	49°14′ 40°46′	48°14′ 41°46′	47°12′ 42°48′
26	57°37′ 32°23′	56°58′ 33°2′	56°19′ 33°41′	55°37′ 34°23′	54°54′ 35°6′	54°10′ 35°50′	53°24′ 36°36′	52°36′ 37°24′	51°46′ 38°14′	50°54′ 39°6′	50°1′ 39°59′	49°5′ 40°55′	48°7′ 41°53′	47°7′ 42°53′	46°5′ 43°55′
27	56°33′ 33°22′	55°59′ 34°1′	55°18′ 34°42′	54°36′ 35°24′	53°53′ 36°7′	53°7′ 36°53′	52°21′ 37°39′	51°33′ 38°27′	50°43′ 39°17′	49°51′ 40°9′	48°57′ 41°3′	48°0′ 42°0′	47°3′ 42°57′	46°2′ 43°58′	45°
28	55°40′ 34°20′	55°0′ 35°0′	54°19′ 35°41′	53°37′ 36°23′	52°53′ 37°7′	52°8′ 37°52′	51°20′ 38°40′	50°32′ 39°28′	49°41′ 40°19′	48°49′ 41°11′	47°55′ 42°5′	46°58′ 43°2′	46°0′ 44°0′	45°	
29	54°44′ 35°16′	54°3′ 35°57′	53°22′ 36°38′	52°39′ 37°21′	51°55′ 38°5′	51°9′ 38°51′	50°21′ 39°39′	49°32′ 40°28′	48°41′ 41°19′	47°49′ 42°11′	46°54′ 43°6′	45°58′ 44°2′	45°		
30	53°48′ 36°12′	53°7′ 36°53′	52°26′ 37°34′	51°42′ 38°18′	50°58′ 39°2′	50°12′ 39°48′	49°24′ 40°36′	48°35′ 41°25′	47°43′ 42°17′	46°51′ 43°9′	45°56′ 44°4′	45°			
31	52°54′ 37°6′	52°13′ 37°47′	51°31′ 38°29′	50°48′ 39°12′	50°2′ 39°58′	49°16′ 40°44′	48°28′ 41°32′	47°39′ 42°21′	46°47′ 43°13′	45°54′ 44°6′	45°				
32	52°2′ 37°58′	51°20′ 38°40′	50°38′ 39°22′	49°54′ 40°6′	49°9′ 40°51′	48°22′ 41°38′	47°34′ 42°26′	46°44′ 43°16′	45°53′ 44°7′	45°					
33	51°10′ 38°50′	50°29′ 39°31′	49°46′ 40°14′	49°2′ 40°58′	48°16′ 41°44′	47°29′ 42°31′	46°41′ 43°19′	45°51′ 44°9′	45°						
34	50°20′ 39°40′	49°38′ 40°22′	48°55′ 41°5′	48°11′ 41°49′	47°25′ 42°35′	46°38′ 43°22′	45°50′ 44°10′	45°							
35	49°31′ 40°29′	48°48′ 41°12′	48°5′ 41°55′	47°21′ 42°39′	46°35′ 43°25′	45°48′ 44°12′	45°								
36	48°43′ 41°17′	48°0′ 42°0′	47°17′ 42°43′	46°33′ 43°27′	45°47′ 44°13′	45°									
37	47°56′ 42°4′	47°14′ 42°46′	46°30′ 43°30′	45°46′ 44°14′	45°										
38	47°10′ 42°50′	46°28′ 43°32′	45°45′ 44°15′	45°											
39	46°26′ 43°34′	45°43′ 44°17′	45°												
40	45°42′ 44°18′	45°													
41	45°														

For Bevel Gears with axes at right angles.
Angle for gear above, for pinion below.

ANGLE OF EDGE.

GEAR

PINION	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
12	65°14′ 24°46′	64°22′ 25°38′	63°26′ 26°34′	62°27′ 27°33′	61°23′ 28°37′	60°15′ 29°45′	59°2′ 30°58′	57°44′ 32°16′	56°19′ 33°41′	54°47′ 35°13′	53°7′ 36°53′	51°20′ 38°40′	49°24′ 40°36′	47°17′ 42°43′	45°
13	63°26′ 26°34′	62°31′ 27°29′	61°33′ 28°27′	60°31′ 29°29′	59°25′ 30°35′	58°14′ 31°46′	56°58′ 33°2′	55°37′ 34°23′	54°10′ 35°50′	52°36′ 37°24′	50°54′ 39°6′	49°5′ 40°55′	47°7′ 42°53′	45°	
14	61°42′ 28°18′	60°45′ 29°15′	59°45′ 30°15′	58°40′ 31°20′	57°32′ 32°28′	56°19′ 33°41′	55°0′ 35°0′	53°37′ 36°23′	52°8′ 37°52′	50°32′ 39°28′	48°48′ 41°12′	46°58′ 43°2′	45°		
15	60°1′ 20°50′	59°2′ 30°58′	58°0′ 32°0′	56°53′ 33°7′	55°43′ 34°17′	54°28′ 35°32′	53°7′ 36°53′	51°42′ 38°18′	50°12′ 39°48′	48°35′ 41°25′	46°51′ 43°9′	45°			
16	58°23′ 31°37′	57°23′ 32°37′	56°19′ 33°41′	55°11′ 34°49′	53°58′ 36°2′	52°42′ 37°18′	51°20′ 38°40′	49°54′ 40°6′	48°22′ 41°38′	46°44′ 43°16′	45°				
17	56°49′ 33°11′	55°47′ 34°13′	54°41′ 35°19′	53°32′ 36°28′	52°18′ 37°42′	51°0′ 39°0′	49°38′ 40°22′	48°11′ 41°49′	46°38′ 43°22′	45°					
18	55°18′ 34°42′	54°15′ 35°45′	53°7′ 36°53′	51°57′ 38°3′	50°43′ 39°17′	49°24′ 40°36′	48°0′ 42°0′	46°33′ 43°27′	45°						
19	53°51′ 36°9′	52°46′ 37°14′	51°38′ 38°22′	50°26′ 39°34′	49°11′ 40°49′	47°52′ 42°8′	46°28′ 43°32′	45°							
20	52°26′ 37°34′	51°20′ 38°40′	50°12′ 39°48′	48°59′ 41°1′	47°43′ 42°17′	46°24′ 43°36′	45°								
21	51°4′ 38°56′	49°58′ 40°2′	48°48′ 41°12′	47°36′ 42°24′	46°20′ 43°40′	45°									
22	49°46′ 40°14′	48°39′ 41°21′	47°29′ 42°31′	46°16′ 43°44′	45°										
23	48°30′ 41°30′	47°23′ 42°37′	46°13′ 43°47′	45°											
24	47°17′ 42°43′	46°10′ 43°50′	45°												
25	46°7′ 43°53′	45°													
26	45°														

For Bevel Gears with axes at right angles.
Angle for gear above, for pinion below.

ANGLE OF FACE.

GEAR

PINION	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
12	7°53′ 78°39′	8° 78°50′	8°7′ 78°39′	8°14′ 78°30′	8°21′ 78°19′	8°28′ 78°10′	8°35′ 77°59′	8°43′ 77°47′	8°51′ 77°37′	8°59′ 77°25′	9°7′ 77°13′	9°17′ 77°1′	9°26′ 76°48′	9°35′ 76°33′	9°45′ 76°23′	9°55′ 76°8′
13	8°40 78°12′	8°48 78°2′	8°54′ 77°52′	9°2′ 77°42′	9°9′ 77°31′	9°18′ 77°20′	9°26′ 77°8′	9°35′ 76°56′	9°43′ 76°45′	9°52′ 76°32′	10°1′ 76°19′	10°11′ 76°7′	10°21′ 75°53′	10°31′ 75°39′	10°42′ 75°26′	10°53′ 75°11′
14	9°26′ 77°26′	9°34′ 77°16′	9°42′ 77°4′	9°50′ 76°54′	9°59′ 76°43′	10°8′ 76°30′	10°16′ 76°18′	10°25 76°7′	10°35′ 75°55′	10°45′ 75°41′	10°54′ 73°28′	11°5′ 75°15′	11°16′ 75°	11°27′ 74°45′	11°39′ 74°31′	11°50′ 74°14′
15	10°12′ 76°40′	10°21′ 76°29′	10°30′ 76°18′	10°38′ 76°6′	10°47′ 75°55′	10°57′ 75°43′	11°6′ 75°30′	11°16′ 75°16′	11°27′ 75°3′	11°37′ 74°49′	11°47′ 74°35′	11°59′ 74°21′	12°11′ 74°7′	12°22′ 73°50′	12°35′ 73°35′	12°48′ 73°18′
16	10°59′ 75°55′	11°7′ 75°43′	11°17′ 75°31′	11°26′ 75°20′	11°37′ 75°7′	11°46′ 74°54′	11°56′ 74°40′	12°7′ 74°27′	12°17′ 74°13′	12°29′ 73°59′	12°40′ 73°44′	12°52′ 73°28′	13°5′ 73°13′	13°18′ 72°56′	13°30′ 72°40′	13°45′ 72°23′
17	11°44′ 75°10′	11°54′ 74°46′	12°4′ 74°33′	12°13′ 74°20′	12°24′ 74°5′	12°34′ 73°52′	12°46′ 73°38′	12°56′ 73°23′	13°7′ 73°9′	13°21′ 72°52′	13°32′ 72°35′	13°45′ 72°21′	13°59′ 72°7′	14°11′ 71°45′	14°26′ 71°28′	14°40′ 71°10′
18	12°29′ 74°25′	12°40′ 74°12′	12°50′ 74°	13° 73°46′	13°12′ 73°32′	13°23′ 73°19′	13°34′ 73°4′	13°47′ 72°49′	13°59′ 72°33′	14°12′ 72°18′	14°24′ 72°2′	14°38′ 71°44′	14°52′ 71°28′	15°6′ 71°10′	15°21′ 70°51′	15°36′ 70°34′
19	13°14′ 73°40′	13°25′ 73°27′	13°36′ 73°14′	13°48′ 73°	14° 72°46′	14°11′ 72°31′	14°24′ 72°16	14°36′ 72°	14°49′ 71°45′	15°2′ 71°28′	15°15′ 71°11′	15°30′ 70°54′	15°44′ 70°30′	15°59′ 70°17′	16°15′ 69°59′	16°31′ 69°39′
20	13°59′ 72°57′	14°11′ 72°43′	14°23′ 72°29′	14°34′ 72°14′	14°46′ 72°	15°1′ 71°45′	15°11′ 71°29′	15°25′ 71°13′	15°39′ 70°56′	15°52′ 70°38′	16°7′ 70°21′	16°21′ 70°3′	16°37′ 69°45′	16°53′ 69°25′	17°8′ 69°6′	17°26′ 68°46′
21	14°43′ 72°13′	14°55′ 71°59′	15°8′ 71°44′	15°21′ 71°29′	15°33′ 71°13′	15°46′ 70°58′	15°59′ 70°41′	16°13′ 70°25	16°28′ 70°8′	16°42′ 69°50′	16°58′ 69°32′	17°13′ 69°13′	17°28′ 68°54′	17°46′ 68°34′	18°2′ 68°14′	18°20′ 67°52′
22	15°27′ 71°29′	15°40′ 71°14′	15°53′ 70°59′	16°6′ 70°44′	16°20′ 70°28′	16°33′ 70°11′	16°47′ 69°55′	17°2′ 69°37′	17°16′ 69°20′	17°31′ 69°1′	17°49′ 68°43′	18°3′ 68°23′	18°20′ 68°4′	18°37′ 67°43′	18°56′ 67°22′	19°13′ 67°1′
23	16°12′ 70°46′	16°24′ 70°30′	16°38′ 70°16′	16°51′ 69°59′	17°5′ 69°43′	17°20′ 69°26′	17°34′ 69°8′	17°50′ 68°50′	18°5′ 68°33′	18°20′ 68°14′	18°36′ 67°54′	18°54′ 67°34′	19°10′ 67°14′	19°28′ 66°52′	19°48′ 66°32′	20°5′ 66°9′
24	16°55′ 70°3′	17°9′ 69°47′	17°22′ 69°32′	17°37′ 69°15′	17°51′ 68°59′	18°6′ 68°40′	18°21′ 68°23′	18°37′ 68°5′	18°53′ 67°45′	19°9′ 67°27′	19°26′ 67°6′	19°44′ 66°46′	20°1′ 66°25′	20°19′ 66°3′	20°39′ 65°41′	20°58′ 65°18′
25	17°39′ 69°21′	17°52′ 69°4′	18°6′ 68°48′	18°21′ 68°31′	18°36′ 68°14′	18°52′ 67°56′	19°7′ 67°37′	19°24′ 67°18′	19°40′ 67°	19°57′ 66°39′	20°14′ 66°20′	20°32′ 65°58′	20°51′ 65°37′	21°10′ 65°14′	21°29′ 64°51′	21°50′ 64°28′
26	18°21′ 68°39′	18°39′ 68°22′	18°51′ 68°5′	19°6′ 67°48′	19°22′ 67°30′	19°37′ 67°13′	19°53′ 66°53′	20°10′ 66°34′	20°26′ 66°14′	20°45′ 65°53′	21°2′ 65°32′	21°21′ 65°11′	21°41′ 64°49′	22° 64°26′	22°20′ 64°2′	22°41′ 63°39′
27	19°3′ 67°57′	19°19′ 67°39′	19°34′ 67°22′	19°49′ 67°5′	20°6′ 66°46′	20°22′ 66°28′	20°38′ 66°8′	20°56′ 65°43′	21°13′ 65°29′	21°32′ 65°8′	21°50′ 64°46′	22°10′ 64°24′	22 29′ 64°1′	22°49′ 63°39′	23°10′ 63°14′	23°31′ 62°49′
28	19°46′ 67°16′	20°1′ 66°59′	20°17′ 66°41′	20°32′ 66°22′	20°50′ 66°4′	21°6′ 65°44′	21°23′ 65°25′	21°41′ 65°5′	22° 64°44	22°18′ 64°22′	22°37′ 64°1′	22°56′ 63°38′	23°17′ 63°15′	23°38′ 62°52′	23°59′ 62°27′	24°21′ 62°1′
29	20°27′ 66°35′	20°43′ 66°17′	20°59′ 65°59′	21°16′ 65°40′	21°33′ 65°21′	21°50′ 65°2′	22°8′ 64°42′	22°27′ 64°21′	22°45′ 63°59′	23°5′ 63°37′	23°25′ 63°15′	23°44′ 62°52′	24°4′ 62°28′	24°25′ 62°5′	24°48′ 61°40′	25°10′ 61°14′
30	20°51′ 65°55′	21°25′ 65°37′	21°42′ 65°18′	21°58′ 64°58′	22°15′ 64°39′	22°34′ 64°18′	22°52′ 63°58′	23°10′ 63°38′	23°30′ 63°16′	23°50′ 62°54′	24°10′ 62°30′	24°30′ 62°7′	24°51′ 61°43′	25°12′ 61°18′	25°36′ 60°54′	25°59′ 60°27′
31	21°50′ 65°14′	22°6′ 64°56′	22°24′ 64°36′	22°41′ 64°17′	22°59′ 63°57′	23°17′ 63°37′	23°35′ 63°15′	23°55′ 62°55′	24°14′ 62°32′	24°34′ 62°10′	24°54′ 61°46′	25°17′ 61°23′	25°38′ 60°58′	25°58′ 60°34′	26°22′ 60°8′	26°46′ 59°42′
32	22°31′ 64°35′	22°48′ 64°16′	23°4′ 63°56′	23°23′ 63°37′	23°40′ 63°16′	23°59′ 62°55′	24°18′ 62°34′	24°38′ 62°12′	24°58′ 61°50′	25°18′ 61°26′	25°39′ 61°3′	26°1′ 60°39′	26°23′ 60°15′	26°45′ 59°49′	27°9′ 59°23′	27°34′ 58°56′
33	23°10′ 63°56′	23°28′ 63°36′	23°46′ 63°16′	24°1′ 62°56′	24°22′ 62°36′	24°41′ 62°15′	25°1′ 61°53′	25°21′ 61°31′	25°42′ 61°8′	26°2′ 60°44′	26°24′ 60°20′	26°45′ 59°55′	27°9′ 59°31′	27°31′ 59°5′	27°56′ 58°38′	28°19′ 58°11′
34	23°51′ 63°17′	24°5′ 62°58′	24°27′ 62°37′	24°44′ 62°16′	25°4′ 61°56′	25°23′ 61°33′	25°42′ 61°12′	26°3′ 60°49′	26°24′ 60°26′	26°46′ 60°2′	27°7′ 59°37′	27°29′ 59°13′	27°52′ 58°48′	28°16′ 58°22′	28°40′ 57°54′	29°5′ 57°27′
35	24°29′ 62°39′	24°48′ 62°18′	25°6′ 61°58′	25°25′ 61°37′	25°44′ 61°16′	26°4′ 60°54′	26°24′ 60°32′	26°45′ 60°9′	27°6′ 59°44′	27°25′ 59°22′	27°50′ 58°56′	28°13′ 58°31′	28°36′ 58°6′	29°1′ 57°39′	29°25′ 57°11′	29°50′ 56°44′
36	25°9′ 62°1′	25°27′ 61°41′	25°45′ 61°20′	26°5′ 60°59′	26°24′ 60°36′	26°45′ 60°15′	27°5′ 59°51′	27°26′ 59°28′	27°48′ 59°4′	28°10′ 58°40′	28°33′ 58°15′	28°56′ 57°50′	29°20′ 57°24′	29°43′ 56°57′	30°9′ 56°29′	30°35′ 56°1′
37	25°47′ 61°23′	26°6′ 61°2′	26°25′ 60°41′	26°44′ 60°20′	27°4′ 59°58′	27°25′ 59°35′	27°45′ 59°13′	28°7′ 58°49′	28°29′ 58°25′	28°51′ 58°1′	29°15′ 57°35′	29°38′ 57°10′	30°2′ 55°42′	30°27′ 56°15′	30°52′ 55°48′	31°18′ 55°20′
38	26°25′ 60°47′	26°44′ 60°26′	27°4′ 60°4′	27°24′ 59°42′	27°44′ 59°20′	28°4′ 58°56′	28°26′ 58°34′	28°47′ 58°9′	29°9′ 57°45′	29°33′ 57°21′	29°55′ 56°55′	30°20′ 56°30′	30°44′ 56°2′	31°9′ 55°35′	31°35′ 55°7′	32°1′ 54°39′
39	27°3′ 60°9′	27°22′ 59°48′	27°42′ 59°28′	28°2′ 59°4′	28°22′ 58°42′	28°43′ 58°19′	29°5′ 57°55′	29°27′ 57°31′	29°49′ 57°7′	30°13′ 56°41′	30°36′ 56°16′	31°1′ 55°49′	31°26′ 55°22′	31°50′ 54°54′	32°16′ 54°28′	32°43′ 53°57′
40	27°40′ 59°34′	28°2′ 59°14′	28°20′ 58°50′	28°41′ 58°27′	29°1′ 58°5′	29°22′ 57°42′	29°43′ 57°17′	30°6′ 56°54′	30°28′ 56 28′	30°52′ 56°2′	31°17′ 55°37′	31°42′ 55°10′	32°0′ 54°44′	32°31′ 54°15′	32°57′ 53°46′	33°24′ 53°18′
41	28°17′ 58°57′	28°37′ 58°37′	28°57′ 58°15′	29°18′ 57°52′	29°39′ 57°29′	30°1′ 57°4′	30°22′ 56°40′	30°45′ 56°15′	31°9′ 55°51′	31°31′ 55°25′	31°55′ 54°59′	32°20′ 54°32′	32°46′ 54°1′	33°12′ 53°36′	33°39′ 55°7′	34°6′ 52°38′
42	28°52′ 58°22′	29°12′ 58°1′	29°33′ 57°39′	29°55′ 57°15′	30°16′ 56°52′	30°38′ 56°28′	31° 56°4′	31°23′ 55°39′	31°47′ 55°13′	32°10′ 54°48′	32°35′ 54°21′	33° 53°54′	33°26′ 53°26′	33°52′ 52°58′	34°19′ 52°29′	34°46′ 52°

For Bevel Gears with axes at right angles.
Angle for gear above, for pinion below.

ANGLE OF FACE.

GEAR

PINION	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42
12	10°6′ 75°54′	10°16′ 75°49′	10°28′ 75°24′	10°39′ 75°9′	10°52′ 74°52″	11°3′ 74°37′	11°15′ 74°15′	11°30′ 73°58′	11°43′ 73°39′	11°58′ 73°20′	12°13′ 72°59′	12°29′ 72°37′	12°45′ 72°15′	13°1′ 71°51′	13°19′ 71°25′
13	11°4′ 74°56′	11°10′ 74°49′	11°28′ 74°24′	11°42′ 74°8′	11°54′ 73°50′	12°8′ 73°32′	12°20′ 73°12′	12°37′ 72°53′	12°51′ 72°33′	13°7′ 72°11′	13°23′ 71°49′	13°40′ 71°26′	13°58′ 71°2′	14°16′ 70°38′	14°35′ 70°11′
14	12°2′ 73°58′	12°16′ 73°42′	12°29′ 73°25′	12°43′ 73°7′	12°57′ 72°49′	13°11′ 72°29′	13°26′ 72°8′	13°42′ 71°48′	13°59′ 71°27′	14°15′ 71°5′	14°33′ 70°41′	14°51′ 70°17′	15°10′ 69°52′	15°30′ 69°26′	15°51′ 68°59′
15	13°1′ 73°1′	13°16′ 72°44′	13°28′ 72°26′	13°43′ 72°7′	13°59′ 71°49′	14°14′ 71°28′	14°30′ 71°6′	14°47′ 70°45′	15°5′ 70°23′	15°23′ 69°59′	15°42′ 69°34′	16°1′ 69°9′	16°22′ 68°42′	16°43′ 68°15′	17°5′ 67°47′
16	13°59′ 72°5′	14°13′ 71°47′	14°28′ 71°28′	14°44′ 71°8′	15°1′ 70°49′	15°17′ 70°27′	15°35′ 70°5′	15°52′ 69°42′	16°11′ 69°19′	16°30′ 68°54′	16°50′ 68°28′	17°10′ 68°2′	17°32′ 67°34′	17°56′ 67°6′	18°18′ 66°36′
17	14°57′ 71°9′	15°11′ 70°49′	15°28′ 70°30′	15°44′ 70°10′	16°1′ 69°49′	16°18′ 69°26′	16°37′ 69°3′	16°55′ 68°39′	17°15′ 68°15′	17°36′ 67°50′	17°57′ 67°23′	18°20′ 66°54′	18°43′ 66°27′	19°6′ 65°58′	19°31′ 65°27′
18	15°52′ 70°14′	16°7′ 69°53′	16°26′ 69°34′	16°42′ 69°12′	17°1′ 68°49′	17°20′ 68°26′	17°39′ 68°3′	17°58′ 67°38′	18°20′ 67°12′	18°41′ 66°47	19°3′ 66°19′	19°27′ 65°51′	19°50′ 65°20′	20°18′ 64°50′	20°42′ 64°18
19	16°49′ 69°19′	17°2′ 68°58′	17°23′ 68°37′	17°41′ 68°15′	18° 67°52′	18°21′ 67°29′	18°40′ 67°4′	19°1′ 66°37′	19°22′ 66°12′	19°46′ 65°44	20°8′ 65°16′	20°34′ 64°46′	20°59′ 64°15′	21°24′ 63°44′	21°52′ 63°10′
20	17°44′ 68°26′	18°4′ 68°3′	18°19′ 67°41′	18°40′ 67°18′	19° 66°54′	19°20′ 66°30′	19°41′ 66°5′	20°2′ 65°38′	20°25′ 65°11′	20°49′ 64°43′	21°13′ 64°13′	21°39′ 63°43′	22°5′ 63°11′	22°32′ 62°38′	23° 62°4′
21	18°39′ 67°31′	18°57′ 67°9′	19°16′ 66°46′	19°37′ 66°23′	19°58′ 65°58′	20°19′ 65°33′	20°41′ 65°7′	21°3′ 64°39′	21°27′ 64°11′	21°52′ 63°42′	22°17′ 63°13′	22°43′ 62°41′	23°10′ 62°8′	23°38′ 61°34′	24°8′ 61°
22	19°32′ 66°38′	19°52′ 66°16′	20°12′ 65°52′	20°33′ 65°27′	20°55′ 65°3′	21°17′ 64°37′	21°40′ 64°10′	22°3′ 63°41′	22°17′ 63°13′	22°53′ 62°43′	23°19′ 62°11′	23°46′ 61°40′	24°15′ 61°7′	24°44′ 60°32′	25°14′ 59°56′
23	20°25′ 65°47′	20°47′ 65°23′	21°8′ 64°58′	21°29′ 64°33′	21°52′ 64°8′	22°13 63°41′	22°37′ 63°13′	23°2′ 62°44′	23°27′ 62°15′	23°54′ 61°44′	24°21′ 61°13′	24°49′ 60°41′	25°18′ 60°6′	25°47′ 59°31′	26°18′ 58°54′
24	21°19′ 64°55′	21°39′ 64°31′	22°1′ 64°5′	22°24′ 63°40′	22°46′ 63°14′	23°10′ 62°46′	23°36′ 62°19′	24° 61°48′	24°26′ 61°15′	24°53′ 60°47′	25°21′ 60°15′	25°49′ 59°41′	26°20′ 59°6′	26°51′ 58°31′	27°23′ 57°53′
25	22°11′ 64°5′	22°33′ 63°39′	22°56′ 63°14′	23°18′ 62°48′	23°41′ 62°21′	24°7′ 61°53′	24°32′ 61°24′	24°57′ 60°53′	25°24′ 60°22′	25°52′ 59°50′	26°20′ 59°18′	26°50′ 58°44′	27°21′ 58°9′	27°52′ 57°32′	28°26′ 56°54′
26	23°3′ 63°15′	23°25′ 62°49′	23°47′ 62°23′	24°13′ 61°56′	24°36′ 61°28′	25°1′ 60°59′	25°28′ 60°30′	25°53′ 59°59′	26°21′ 59°27′	26°49′ 58°55′	27°19′ 58°21′	27°49′ 57°47′	28°21′ 57°11′	28°54′ 56°34′	29°27′ 55°55′
27	23°53′ 62°25′	24°16′ 61°58′	24°40′ 61°32′	25°5′ 61°5′	25°29′ 60°37′	25°55′ 60°7′	26°22′ 59°38′	26°48′ 59°5′	27°17′ 58°33′	27°46′ 58° 57°26′	28°16′ 56°51′	28°47′ 56°15′	29°19′ 55°38′	29°52′ 54°59′	30°27′ 54°19′
28	24°44′ 61°36′	25°7′ 61°9′	25°31′ 60°43′	25°56′ 60°14′	26°22′ 59°46′	26°48′ 59°16′	27°15′ 58°45′	27°43′ 58°13′	28°12′ 57°42′	28°42′ 57°8′	29°12′ 56°32′	29°43′ 55°57′	30°16′ 55°20′	30°50′ 54°42′	31°25′ 54°3′
29	25°33′ 60°47′	25°57′ 60°21′	26°22′ 59°52′	26°47′ 59°25′	27°14′ 58°56′	27°40′ 58°26′	28°8′ 57°54′	28°36′ 57°22′	29°5′ 56°49′	29°37′ 56°15′	30°8′ 55°40′	30°40′ 55°4′	31°13′ 54°27′	31°48′ 53°48′	32°23′ 53°9′
30	26°22′ 60° 59°13′	26°47′ 59°33′	27°12′ 59°6′	27°38′ 58°36′	28°4′ 58°6′	28°32′ 57°36′	29° 57°4′	29°28′ 56°32′	29°58′ 55°58′	30°30′ 55°24′	31°2′ 54°48′	31°34′ 54°12′	32°8′ 53°34′	32°44′ 52°54′	33°19′ 52°15′
31	27°10′ 59°14′	27°34′ 58°46′	28°3′ 58°15′	28°27′ 57°49′	28°54′ 57°15′	29°23′ 56°47′	29°51′ 56°15′	30°20′ 55°42′	30°52′ 55°8′	31°22′ 54°34′	31°55′ 53°57′	32°29′ 53°21′	33°2′ 52°42′	33°39′ 52°3′	34°15′ 51°23′
32	27°58′ 58°28′	28°23′ 57°59′	28°49′ 57°31′	29°17′ 57°1′	29°33′ 56°41′	30°12′ 56°	30°42′ 55°28′	31°10′ 54°54′	31°42′ 54°20′	32°14′ 53°44′	32°46′ 53°8′	33°21′ 52°31′	33°56′ 51°52′	34°31′ 51°13′	35°8′ 50°32′
33	28°45′ 57°43′	29°10′ 57°14′	29°37′ 56°45′	30°5′ 56°15′	30°32′ 55°49′	31°1′ 55°13′	31°31′ 54°39′	32°1′ 54°5′	32°32′ 53°32′	33°4′ 52°56′	33°38′ 52°20′	34°12′ 51°42′	34°47′ 51°3′	35°24′ 50°22′	36° 49°41′
34	29°31′ 56°59′	29°57′ 56°29′	30°24 56° 55°29′	30°51′ 54°58′	31°20′ 54°27′	31°49′ 53°53′	32°19′ 53°20′	32°50′ 52°44′	33°22′ 52°8′	33°54′ 51°32′	34°28′ 50°50′	35°6′ 50°14′	35°38′ 49°35′	36°15′ 48°53′	36°53′ 48°13′
35	30°15′ 56°15′	30°42′ 55°46′	31°10′ 55°16′	31°38′ 54°44′	32°7′ 54°13′	32°36′ 53°40′	33°7′ 53°7′	33°35′ 52°34′	34°10′ 51°58′	34°42′ 51°22′	35°17′ 50°45′	35°51′ 50°7′	36°27′ 49°27′	37°5′ 48°47′	37°42′ 48°6′
36	31° 55°32′	31°27′ 55°3′	31°55′ 54°33′	32°23′ 54°1′	32°53′ 53°28′	33°23′ 52°57′	33°53′ 52°23′	34°25′ 51°40′	34°57′ 51°13′	35°31′ 50°37′	36°5′ 49°59′	36°41′ 49°21′	37°16′ 48°42′	37°53′ 48°1′	38°32′ 47°20′
37	31°45′ 54°49′	32°12′ 54°20′	32°40′ 53°50′	33°8′ 53°18′	33°38′ 52°46′	34°9′ 52°13′	34°40′ 51°40′	35°12′ 51°4′	35°43′ 50°29′	36°18′ 49°52′	36°51′ 49°15′	37°27′ 48°37′	38°4′ 47°56′	38°42′ 47°16′	39°20′ 46°34′
38	32°27′ 54°9′	32°56′ 53°38′	33°24′ 53°8′	33°52′ 52°38′	34°22′ 52°4′	34°54′ 51°30′	35°24′ 50°56′	35°57′ 50°21′	36°29′ 49°45′	37°3′ 49°9′	37°38′ 48°32′	38°14′ 47°52′	38°51′ 47°13′	39°28′ 46°32′	40°7′ 45°51′
39	33°10′ 53°28′	33°39′ 52°57′	34°7′ 52°27′	34°36′ 51°54′	35°7′ 51°21′	35°37′ 50°49′	36°9′ 50°15′	36°41′ 49°39′	37°15′ 49°3′	37°48′ 48°26′	38°24′ 47°48′	39° 47°10′	39°36′ 46°30′	40°13′ 45°49′	40°53′ 45°7′
40	33°52′ 52°48′	34°21′ 52°17′	34°50′ 51°46′	35°18′ 51°14′	35°49′ 50°41′	36°20′ 50°8′	36°53′ 49°33′	37°25′ 48°57′	37°58′ 48°22′	38°33′ 47°45′	39°8′ 47°6′	39°44′ 46°28′	40°20′ 45°48′	40°58′ 45°8′	41°37′ 44°25′
41	34°33′ 52°9′	35°3′ 51°37′	35°31′ 51°7′	36°1′ 50°33′	36°31′ 50°1′	37°3′ 49°27′	37°35′ 48°53′	38°7′ 48°17′	38°41′ 47°41′	39°16′ 47°4′	39°51′ 46°25′	40°27′ 45°47′	41°5′ 45°7′	41°42′ 44°26′	41°22′ 43°44′
42	35°14′ 51°30′	35°43′ 50°59′	36°12′ 50°28′	36°42′ 49°54′	37°13′ 49°21′	37°44′ 48°48′	38°17′ 48°13′	38°49′ 47°37′	39°23′ 47°1′	39°58′ 46°24′	40°34′ 45°46′	41°9′ 45°7′	41°47′ 44°27′	42°26′ 43°46′	43°4′

For Bevel Gears with axes at right angles.
Angle for gear above, for pinion below.

ANGLE OF FACE.

GEAR

PINION	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27
12	13°37′ 70°59′	13°57′ 70°33′	14°18′ 70°6′	14°39′ 69°35′	15°1′ 69°5′	15°24′ 68°32′	15°49′ 67°59′	16°15′ 67°23′	16°43′ 66°45′	17°13′ 66°5′	17°43′ 65°23′	18°15′ 64°39′	18°51′ 63°53′	19°27′ 63°3′	20°5′ 62°9′
13	14°55′ 69°45′	15°17′ 69°15′	15°39′ 68°47′	16°1′ 68°15′	16°25′ 67°43′	16°51′ 67°9′	17°19′ 66°33′	17°46′ 65°56′	18°16′ 65°16′	18°48′ 64°34′	19°21′ 63°51′	19°57′ 63°5′	20°32′ 62°14′	21°11′ 61°23′	21°54′ 60°28′
14	16°13′ 68°31′	16°34′ 68°0′	16°59′ 67°29′	17°24′ 66°56′	17°50′ 66°22′	18°17′ 65°47′	18°45′ 65°9′	19°16′ 64°30′	19°48′ 63°48′	20 20′ 63°6′	20°56′ 62°20′	21°34′ 61°32′	22°13′ 60°41′	22°55′ 59°47′	23°38′ 58°50′
15	17-28′ 67°16′	17°53′ 66°45′	18°18′ 66°14′	18°44′ 65°40′	19°11′ 65°3′	19°40′ 64°26′	20°11′ 63°49′	20°44′ 63°8′	21°18′ 62°24′	21°53′ 61°39′	22°31′ 60°51′	23°10′ 60°2′	23°51′ 59°9′	24°35′ 58°13′	25°20′ 57°14′
16	18°42′ 66°4′	19°9′ 65°33′	19°35′ 64°59′	20°3′ 64°23′	20°32′ 63°46′	21°3′ 63°7′	21°36′ 62°28′	22°9′ 61°45′	22°45′ 61°01′	23°22′ 60°14′	24°1′ 59°25′	24°42′ 58°34′	25°26′ 57°40′	26°12′ 56°42′	27°1′ 55°43′
17	19°50′ 64°54′	20°24′ 64°20′	20°51′ 63°45′	21°21′ 63°9′	21°53′ 62°31′	22°24′ 61°50′	22°57′ 61°9′	23°33′ 60°25′	24°10′ 59°40′	24°50′ 58°52′	25°31′ 58°1′	26°14′ 57°10′	27°59′ 56°13′	27°47′ 55°15′	28°37′ 54°13′
18	21°9′ 63°45′	21°37′ 63°9′	22°6′ 62°34′	22°38′ 61°56′	23°9′ 61°17′	23°43′ 60°35′	24°18′ 59°52′	24°56′ 59°8′	25°34′ 58°20′	26°15′ 57°31′	26°57′ 56°39′	27°42′ 55°46′	28°29′ 54°49′	29°18′ 53°50′	30°9′ 52°47′
19	22°20′ 62°36′	22°49′ 62°1′	23°20′ 61°24′	23°52′ 60°44′	24°26′ 60°4′	25°1′ 59°21′	25°37′ 58°37′	26°15′ 57°51′	26°56′ 57°4′	27°38′ 56°14′	28°22′ 55°22′	29°8′ 54°26′	29°56′ 53°28′	30°43′ 52°28′	31°40′ 51°24′
20	23°30′ 61°30′	24°1′ 60°53′	24°32′ 60°14′	25°6′ 59°34′	25°40′ 58°54′	26°16′ 58°10′	26°55′ 57°25′	27°34′ 56°38′	28°15′ 55°49′	28°58′ 54°58′	29°44′ 54°4′	30°31′ 53°9′	31°21′ 52°9′	32°13′ 51°9′	33°8′ 50°4′
21	24°39′ 60°25′	25°10′ 59°46′	25°43′ 59°7′	26°18′ 58°26′	26°53′ 57°43′	27°30′ 57°0′	28°10′ 56°14′	28°50′ 55°26′	29°32′ 54°36′	30°17′ 53°43′	31°4′ 52°50′	31°52′ 51°52′	32°43′ 50°53′	33°36′ 49°50′	34°31′ 48°47′
22	25°46′ 59°20′	26°19′ 58°41′	26°53′ 58°1′	27°27′ 57°19′	28°5′ 56°35′	28°43′ 55°51′	29°22′ 55°4′	30°5′ 54°17′	30°48′ 53°26′	31°34′ 52°32′	32°22′ 51°38′	33°11′ 50°41′	34°3′ 49°41′	34°57′ 48°37′	35°54′ 47°32′
23	26°52′ 58°16′	27°26′ 57°38′	28°0′ 56°56′	28°36′ 56°14′	29°14′ 55°30′	29°53′ 54°43′	30°35′ 53°57′	31°18′ 53°8′	32°1′ 52°15′	32°48′ 51°21′	33°36′ 50°28′	34°27′ 49°29′	35°20′ 48°30′	36°15′ 47°27′	37°12′ 46°20′
24	27°57′ 57°15′	28°31′ 56°35′	29°7′ 55°53′	29°43′ 55°11′	30°22′ 54°26′	31°2′ 53°40′	31°45′ 52°51′	32°28′ 52°2′	33°14′ 51°10′	34°1′ 50°5′	34°50′ 49°20′	35°42′ 48°22′	36°35′ 47°21′	37°30′ 46°18′	38°28′ 45°12′
25	28°59′ 56°15′	29°34′ 55°34′	30°12′ 54°52′	30°49′ 54°9′	31°29′ 53°23′	32°10′ 52°36′	32°52′ 51°48′	33°37′ 50°57′	34°23′ 50°5′	35°11′ 49°11′	36°0′ 48°14′	36°52′ 47°16′	37°47′ 46°15′	38°43′ 45°11′	39°41′ 44°5′
26	30°1′ 55°15′	30°38′ 54°34′	31°14′ 53°52′	31°54′ 53°8′	32°34′ 52°22′	33°15′ 51°35′	33°58′ 50°46′	34°45′ 49°55′	35°31′ 49°3′	36°19′ 48°7′	37°10′ 47°12′	38°2′ 46°12′	38°56′ 45°10′	39°53′ 44°7′	40°52′ 43°2′
27	31°3′ 54°19′	31°39′ 53°37′	32°18′ 52°54′	32°57′ 52°9′	33°37′ 51°23′	34°20′ 50°34′	35°3′ 49°45′	35°49′ 48°55′	36°36′ 48°2′	37°25′ 47°7′	38°16′ 46°10′	39°10′ 45°10′	40°4′ 44°10′	41°1′ 43°5′	42°
28	32°2′ 53°22′	32°39′ 52°39′	33°18′ 51°56′	33°57′ 51°11′	34°39′ 50°25′	35°21′ 49°31′	36°7′ 48°47′	36°52′ 47°56′	37°40′ 47°2′	38°29′ 46°7′	39°21′ 45°11′	40°15′ 44°11′	41°9′ 43°9′	42°7′	
29	32°59′ 52°27′	33°38′ 51°44′	34°17′ 51°1′	34°58′ 50°16′	35°39′ 49°29′	36°23′ 48°41′	37°8′ 47°50′	37°54′ 46°58′	38°42′ 46°4′	39°32′ 45°10′	40°24′ 44°12′	41°18′ 43°14′	42°13′		
30	33°57′ 51°33′	34°36′ 50°50′	35°15′ 50°7′	35°56′ 49°20′	36°38′ 48°34′	37°21′ 47°45′	38°7′ 46°55′	38°53′ 46°3′	39°43′ 45°9′	40°32′ 44°14′	41°25′ 43°17′	42°18′			
31	34°53′ 50°41′	35°31′ 49°57′	36°11′ 49°13′	36°52′ 48°28′	37°35′ 47°39′	38°20′ 46°52′	39°5′ 46°1′	39°52′ 45°10′	40°11′ 44°15′	41°32′ 43°20′	42°23′				
32	35°46′ 49°50′	36°27′ 49°7′	37°6′ 48°22′	37°48′ 47°36′	38°31′ 46°49′	39°15′ 45°59′	40°1′ 45°9′	40°49′ 44°17′	41°38′ 43°24′	42°28′					
33	36°39′ 48°59′	37°19′ 48°17′	38°0′ 47°32′	38°42′ 46°46′	39°26′ 45°58′	40°0′ 45°8′	40°56′ 44°18′	41°44′ 43°26′	42°33′						
34	37°32′ 48°12′	38°11′ 47°27′	38°53′ 46°43′	39°35′ 45°57′	40°18′ 45°8′	41°4′ 44°20′	41°49′ 43°29′	42°37′							
35	38°22′ 47°24′	39°3′ 46°39′	39°44′ 45°54′	40°26′ 45°8′	41°10′ 44°20′	41°55′ 43°31′	42°41′								
36	39°11′ 46°37′	39°52′ 45°52′	40°34′ 45°8	41°15′ 44°21′	42°0′ 43°34′	42°45′									
37	40°0′ 45°52′	40°40′ 45°8′	41°22′ 44°22′	42°5′ 43°37′	42°48′										
38	40°47′ 45°7′	41°28′ 44°24′	42°9′ 43°39′	42°52′											
39	41°32′ 44°24′	42°14′ 43°40′	42°56′												
40	42°18′ 43°42′	42°58′													
41	43°2′														

For Bevel Gears with axes at right angles.
Angle for gear above, for pinion below.

ANGLE OF FACE.

GEAR

PINION	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
12	20°46′ 61°14′	21°31′ 60°15′	22°18′ 59°10′	23°8′ 58°2′	24°3′ 56°49′	25°2′ 55°32′	26°3′ 54°7′	27°11′ 52°39′	28°25′ 51°3′	29°43′ 49°17′	31°11′ 47°25′	32°44′ 45°24′	34°26′ 43°14′	36°16′ 40°50′	38°17′
13	22°37′ 59°29′	23°26′ 58°28′	24°15′ 57°21′	25°9′ 56°11′	26°6′ 54°56′	27°8′ 53°36′	28°14′ 52°10′	29°25′ 50°39′	30°42′ 49°2′	32°4′ 47°16′	33°34′ 45°22′	35°10′ 43°20′	36°55′ 41°9′	38°48′	
14	24°25′ 57°49′	25°16′ 56°46′	26°8′ 55°38′	27°5′ 54°25′	28°4′ 53°8′	29°9′ 51°47′	30°20′ 50°20′	31°33′ 48°47′	32°52′ 47°8′	34°18′ 45°12′	35°50′ 43°26′	37°28′ 41°24′	39°15′		
15	26°11′ 56°13′	27°3′ 55°7′	27°58′ 53°58′	28°58′ 52°44′	30°0′ 51°26′	31°6′ 50°2′	32°19′ 48°33′	33°36′ 47°0′	34°56′ 45°20′	36°23′ 43°33′	37°57′ 41°39′	39°38′			
16	27°52′ 54°38′	28°45′ 53°31′	29°43′ 52°21′	30°44′ 51°6′	31°50′ 49°46′	32°58′ 48°22′	34°12′ 46°52′	35°31′ 45°19′	36°54′ 43°38′	38°23′ 41°51′	39°57′				
17	29°30′ 53°3′	30°26′ 52°0′	31°26′ 50°48′	32°28′ 49°32′	33°35′ 48°11′	34°47′ 46°47′	36°0′ 45°16′	37°21′ 43°43′	38°45′ 42°1′	40°15′					
18	31°57′ 51°41′	32°27′ 50°32′	33°4′ 49°18′	34°8′ 48°2′	35°15′ 46°41′	36°28′ 45°16′	37°45′ 43°45′	39°5′ 42°11′	40°31′						
19	32°36′ 50°18′	33°36′ 49°8′	34°38′ 47°54′	35°49′ 46°36′	36°53′ 45°15′	38°6′ 43°50″	39°24′ 42°20′	40°45′							
20	34°5′ 48°57′	35°6′ 47°46′	36°8′ 46°32′	37°16′ 45°14′	38°26′ 43°52′	39°39′ 42°27′	40°57′								
21	35°31′ 47°39′	36°32′ 46°28′	37°37′ 45°13′	38°44′ 43°56′	39°54′ 42°34′	41°8′									
22	36°52′ 46°24′	37°55′ 45°13′	39°0′ 43°58′	40°8′ 42°40′	41°19′										
23	38°12′ 45°12′	39°15′ 44°1′	40°20′ 42°46′	41°28′											
24	39°29′ 44°3′	40°32′ 42°52′	41°38′												
25	40°43′ 42°57′	41°46′													
26	41°53′														

For Bevel Gears with axes at right angles.
Angle for gear above, for pinion below.

Table for Selecting Cutters for Bevel Gears.

SELECTION OF CUTTERS.

The following tables are for use in selecting cutters for cutting bevel gears. The various numbers of teeth in gear and pinion are given and at the intersection of the two columns will be found the numbers of the cutters required.

EXAMPLE.—Required cutters for a pair of bevel gears, 8 pitch; gear 24 teeth, pinion 12 teeth.

In column at left of table, page 86, will be found 24 teeth and in column at top 12 teeth; at the intersection of these two columns will be found the numbers of the cutters, in this case No. 3 for the gear and No. 8 for the pinion.

CUTTERS FOR USE IN CUTTING BEVEL GEARS.

PINION.

GEAR	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
12	7-7																		
13	6-7	6-6																	
14	5-7	6-6	6-6																
15	5-7	5-6	5-6	5-5															
16	4-7	5-7	5-6	5-6	5-5														
17	4-7	4-7	4-6	5-6	5-5	5-5													
18	4-7	4-7	4-6	4-6	4-5	4-5	5-5												
19	3-7	4-7	4-6	4 6	4-6	4-5	4-5	4-4											
20	3-7	3-7	4-6	4-6	4-6	4-5	4-5	4-4	4-4										
21	3-8	3-7	3-7	3-6	4-6	4-5	4-5	4-5	4-4	4-4									
22	3-8	3-7	3-7	3-6	3-6	3-5	4-5	4-5	4-4	4-4	4-4								
23	3-8	3-7	3-7	3-6	3-6	3-5	3-5	3-5	3-4	4-4	4-4	4-4							
24	3-8	3-7	3-7	3-6	3-6	3-6	3-5	3-5	3-4	3-4	3-4	4-4	4-4						
25	2-8	2-7	3-7	3-6	3-6	3-6	3-5	3-5	3-5	3-4	3-4	3-4	4-4	3-3					
26	2-8	2-7	3-7	3-6	3-6	3-6	3-5	3-5	3-5	3-4	3-4	3-4	3-4	3-3	3-3				
27	2-8	2-7	2-7	2-6	3-6	3-6	3-5	3-5	3-5	3-4	3-4	3-4	3-4	3-4	3-3	3-3			
28	2-8	2-7	2-7	2-6	2-6	3-6	3-5	3-5	3-5	3-4	3-4	3-4	3-4	3-4	3-3	3-3	3-3		
29	2-8	2-7	2-7	2-7	2-6	2-6	3-5	3-5	3-5	3-4	3-4	3-4	3-4	3-4	3-3	3-3	3-3	3-3	
30	2-8	2-7	2-7	2-7	2-6	2-6	2-5	2-5	3-5	3-5	3-4	3-4	3-4	3-4	3-4	3-3	3-3	3-3	3-3
31	2-8	2-7	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	3-4	3-4	3-4	3-4	3-4	3-3	3-3	3-3	3-3
32	2-8	2-7	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-4	2-4	3-4	3-4	3-4	3-3	3-3	3-3	3-3
33	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-4	2-4	2-4	3-4	3-4	3-4	3-3	3-3	3-3
34	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	3-4	3-3	3-3	3-3
35	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3	3-3	3-3
36	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-3	2-3	2-3
37	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-3	2-3	2-3
38	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3	2-3
39	2-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3	2-3
40	1-8	2-8	2-7	2-7	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3	2-3
41	1-8	1-8	2-7	2-7	2-6	2-6	2-6	2-6	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3	2-3
42	1-8	1-8	2-7	2-7	2-6	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-3	2-3
43	1-8	1-8	1-7	2-7	2-6	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
44	1-8	1-8	1-7	1-7	2-6	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
45	1-8	1-8	1-7	1-7	1-6	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
46	1-8	1-8	1-7	1-7	1-7	2-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
47	1-8	1-8	1-7	1-7	1-7	1-6	2-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
48	1-8	1-8	1-7	1-7	1-7	1-6	1-6	2-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
49	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
50	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	2-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-3
51	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-5	2-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-4
52	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-5	1-5	2-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-4
53	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-5	1-5	1-5	2-5	2-4	2-4	2-4	2-4	2-4	2-4	2-4
54	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-5	1-5	1-5	1-5	2-4	2-4	2-4	2-4	2-4	2-4	2-4
55	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	2-4	2-4	2-4	2-4	2-4	2-4

For Bevel Gears with axes at right angles.

Number of cutter for gear given first, followed by number for pinion.

CUTTERS FOR USE IN CUTTING BEVEL GEARS.

(Continued.)

PINION.

GEAR.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
56	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	2-4	2-4	2-4	2-4	2-4
57	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	2-4	2-4	2-4	2-4
58	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	2-4	2-4	2-4
59	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	2-4	2-4
60	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	2-4
61	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
62	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
63	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
64	1-8	1-8	1-7	1-7	1-6	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
65	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
66	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
67	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
68	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
69	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
70	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
71	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
72	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
73	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
74	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
75	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
76	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
77	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
78	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
79	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
80	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
81	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
82	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
83	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
84	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
85	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
86	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
87	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
88	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
89	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
90	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
91	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
92	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
93	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
94	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
95	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
96	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
97	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
98	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
99	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4
100	1-8	1-8	1-7	1-7	1-7	1-6	1-6	1-6	1-6	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4

For Bevel Gears with axes at right angles.

Number of cutter for gear given first, followed by number for pinion.

Table for the Solution of Right Angled Triangles.

SOLUTION OF TRIANGLES BY NATURAL LINES.

PARTS GIVEN.	PARTS TO BE FOUND.				
	ANGLE.	ADJ. SIDE.	OPP. SIDE.	HYPOTH.	OPP. ANG.
Opp. and Hyp.	$\text{Sin.} = \frac{\text{Opp.}}{\text{Hyp.}}$	$\sqrt{\text{Hyp.}^2 - \text{Opp.}^2}$			$\text{Cos.} = \frac{\text{Opp.}}{\text{Hyp.}}$
Opp. and Adj.	$\text{Tan.} = \frac{\text{Opp.}}{\text{Adj.}}$			$\sqrt{\text{Opp.}^2 + \text{Adj.}^2}$	$\text{Cot.} = \frac{\text{Opp.}}{\text{Adj.}}$
Adj. and Hyp.	$\text{Cos.} = \frac{\text{Adj}}{\text{Hyp.}}$		$\sqrt{\text{Hyp.}^2 - \text{Adj.}^2}$		$\text{Sin.} = \frac{\text{Adj.}}{\text{Hyp.}}$
Ang. and Opp.		Opp. × Cot.		Opp. ÷ Sin.	90° — Ang.
Ang. and Adj.			Adj. × Tang.	Adj. ÷ Cos.	90° — Ang.
Ang. and Hyp.		Hyp. × Cos.	Hyp. × Sin.		90° — Ang.

ABBREVIATIONS USED.

Opp. = Opposite side.
Adj. = Adjacent side.
Hyp. = Hypothenuse.
Ang. = Angle.

Sin. = Sine.
Tan. = Tangent.
Cos. = Cosine.
Cot. = Cotangent.

Natural Sines and Cosines
Natural Tangents and Cotangents

Courtesy of
The International Correspondence Schools,
Scranton, Pa.

NATURAL SINES AND COSINES

′	0°		1°		2°		3°		4°		′
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.00000	1.	.01745	.99985	.03490	.99939	.05234	.99863	.06976	.99756	60
1	.00029	1.	.01774	.99984	.03519	.99938	.05263	.99861	.07005	.99754	59
2	.00058	1.	.01803	.99984	.03548	.99937	.05292	.99860	.07034	.99752	58
3	.00087	1.	.01832	.99983	.03577	.99936	.05321	.99858	.07063	.99750	57
4	.00116	1.	.01862	.99983	.03606	.99935	.05350	.99857	.07092	.99748	56
5	.00145	1.	.01891	.99982	.03635	.99934	.05379	.99855	.07121	.99746	55
6	.00175	1.	.01920	.99982	.03664	.99933	.05408	.99854	.07150	.99744	54
7	.00204	1.	.01949	.99981	.03693	.99932	.05437	.99852	.07179	.99742	53
8	.00233	1.	.01978	.99980	.03723	.99931	.05466	.99851	.07208	.99740	52
9	.00262	1.	.02007	.99980	.03752	.99930	.05495	.99849	.07237	.99738	51
10	.00291	1.	.02036	.99979	.03781	.99929	.05524	.99847	.07266	.99736	50
11	.00320	.99999	.02065	.99979	.03810	.99927	.05553	.99846	.07295	.99734	49
12	.00349	.99999	.02094	.99978	.03839	.99926	.05582	.99844	.07324	.99731	48
13	.00378	.99999	.02123	.99977	.03868	.99925	.05611	.99842	.07353	.99729	47
14	.00407	.99999	.02152	.99977	.03897	.99924	.05640	.99841	.07382	.99727	46
15	.00436	.99999	.02181	.99976	.03926	.99923	.05669	.99839	.07411	.99725	45
16	.00465	.99999	.02211	.99976	.03955	.99922	.05698	.99838	.07440	.99723	44
17	.00495	.99999	.02240	.99975	.03984	.99921	.05727	.99836	.07469	.99721	43
18	.00524	.99999	.02269	.99974	.04013	.99919	.05756	.99834	.07498	.99719	42
19	.00553	.99998	.02298	.99974	.04042	.99918	.05785	.99833	.07527	.99716	41
20	.00582	.99998	.02327	.99973	.04071	.99917	.05814	.99831	.07556	.99714	40
21	.00611	.99998	.02356	.99972	.04100	.99916	.05844	.99829	.07585	.99712	39
22	.00640	.99998	.02385	.99972	.04129	.99915	.05873	.99827	.07614	.99710	38
23	.00669	.99998	.02414	.99971	.04159	.99913	.05902	.99826	.07643	.99708	37
24	.00698	.99998	.02443	.99970	.04188	.99912	.05931	.99824	.07672	.99705	36
25	.00727	.99997	.02472	.99969	.04217	.99911	.05960	.99822	.07701	.99703	35
26	.00756	.99997	.02501	.99969	.04246	.99910	.05989	.99821	.07730	.99701	34
27	.00785	.99997	.02530	.99968	.04275	.99909	.06018	.99819	.07759	.99699	33
28	.00814	.99997	.02560	.99967	.04304	.99907	.06047	.99817	.07788	.99696	32
29	.00814	.99996	.02589	.99966	.04333	.99906	.06076	.99815	.07817	.99694	31
30	.00873	.99996	.02618	.99966	.04362	.99905	.06105	.99813	.07846	.99692	30
31	.00902	.99996	.02647	.99965	.04391	.99904	.06134	.99812	.07875	.99689	29
32	.00931	.99996	.02676	.99964	.04420	.99902	.06163	.99810	.07904	.99687	28
33	.00960	.99995	.02705	.99963	.04449	.99901	.06192	.99808	.07933	.99685	27
34	.00989	.99995	.02734	.99963	.04478	.99900	.06221	.99806	.07962	.99683	26
35	.01018	.99995	.02763	.99962	.04507	.99898	.06250	.99804	.07991	.99680	25
36	.01047	.99995	.02792	.99961	.04536	.99897	.06279	.99803	.08020	.99678	24
37	.01076	.99994	.02821	.99960	.04565	.99896	.06308	.99801	.08049	.99676	23
38	.01105	.99994	.02850	.99959	.04594	.99894	.06337	.99799	.08078	.99673	22
39	.01134	.99994	.02879	.99959	.04623	.99893	.06366	.99797	.08107	.99671	21
40	.01164	.99993	.02908	.99958	.04653	.99892	.06395	.99795	.08136	.99668	20
41	.01193	.99993	.02938	.99957	.04682	.99890	.06424	.99793	.08165	.99666	19
42	.01222	.99993	.02967	.99956	.04711	.99889	.06453	.99792	.08194	.99664	18
43	.01251	.99992	.02996	.99955	.04740	.99888	.06482	.99790	.08223	.99661	17
44	.01280	.99992	.03025	.99954	.04769	.99886	.06511	.99788	.08252	.99659	16
45	.01309	.99991	.03054	.99953	.04798	.99885	.06540	.99786	.08281	.99657	15
46	.01338	.99991	.03083	.99952	.04827	.99883	.06569	.99784	.08310	.99654	14
47	.01367	.99991	.03112	.99952	.04856	.99882	.06598	.99782	.08339	.99652	13
48	.01396	.99990	.03141	.99951	.04885	.99881	.06627	.99780	.08368	.99649	12
49	.01425	.99990	.03170	.99950	.04914	.99879	.06656	.99778	.08397	.99647	11
50	.01454	.99989	.03199	.99949	.04943	.99878	.06685	.99776	.08426	.99644	10
51	.01483	.99989	.03228	.99948	.04972	.99876	.06714	.99774	.08455	.99642	9
52	.01513	.99989	.03257	.99947	.05001	.99875	.06743	.99772	.08484	.99639	8
53	.01542	.99988	.03286	.99946	.05030	.99873	.06773	.99770	.08513	.99637	7
54	.01571	.99988	.03316	.99945	.05059	.99872	.06802	.99768	.08542	.99635	6
55	.01600	.99987	.03345	.99944	.05088	.99870	.06831	.99766	.08571	.99632	5
56	.01629	.99987	.03374	.99943	.05117	.99869	.06860	.99764	.08600	.99630	4
57	.01658	.99986	.03403	.99942	.05146	.99867	.06889	.99762	.08629	.99627	3
58	.01687	.99986	.03432	.99941	.05175	.99866	.06918	.99760	.08658	.99625	2
59	.01716	.99985	.03461	.99940	.05205	.99864	.06947	.99758	.08687	.99622	1
60	.01745	.99985	.03490	.99939	.05234	.99863	.06976	.99756	.08716	.99619	0
′	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	′
	89°		88°		87°		86°		85°		

NATURAL SINES AND COSINES

/	5°		6°		7°		8°		9°		/
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.08716	.99619	.10453	.99452	.12187	.99255	.13917	.99027	.15643	.98769	60
1	.08745	.99617	.10482	.99449	.12216	.99251	.13946	.99023	.15672	.98764	59
2	.08774	.99614	.10511	.99446	.12245	.99248	.13975	.99019	.15701	.98760	58
3	.08803	.99612	.10540	.99443	.12274	.99244	.14004	.99015	.15730	.98755	57
4	.08831	.99609	.10569	.99440	.12302	.99240	.14033	.99011	.15758	.98751	56
5	.08860	.99607	.10597	.99437	.12331	.99237	.14061	.99006	.15787	.98746	55
6	.08889	.99604	.10626	.99434	.12360	.99233	.14090	.99002	.15816	.98741	54
7	.08918	.99602	.10655	.99431	.12389	.99230	.14119	.98998	.15845	.98737	53
8	.08947	.99599	.10684	.99428	.12418	.99226	.14148	.98994	.15873	.98732	52
9	.08976	.99596	.10713	.99424	.12447	.99222	.14177	.98990	.15902	.98728	51
10	.09005	.99594	.10742	.99421	.12476	.99219	.14205	.98986	.15931	.98723	50
11	.09034	.99591	.10771	.99418	.12504	.99215	.14234	.98982	.15959	.98718	49
12	.09063	.99588	.10800	.99415	.12533	.99211	.14263	.98978	.15988	.98714	48
13	.09092	.99586	.10829	.99412	.12562	.99208	.14292	.98973	.16017	.98709	47
14	.09121	.99583	.10858	.99409	.12591	.99204	.14320	.98969	.16046	.98704	46
15	.09150	.99580	.10887	.99406	.12620	.99200	.14349	.98965	.16074	.98700	45
16	.09179	.99578	.10916	.99402	.12649	.99197	.14378	.98961	.16103	.98695	44
17	.09208	.99575	.10945	.99399	.12678	.99193	.14407	.98957	.16132	.98690	43
18	.09237	.99572	.10973	.99396	.12706	.99189	.14436	.98953	.16160	.98686	42
19	.09266	.99570	.11002	.99393	.12735	.99186	.14464	.98948	.16189	.98681	41
20	.09295	.99567	.11031	.99390	.12764	.99182	.14493	.98944	.16218	.98676	40
21	.09324	.99564	.11060	.99386	.12793	.99178	.14522	.98940	.16246	.98671	39
22	.09353	.99562	.11089	.99383	.12822	.99175	.14551	.98936	.16275	.98667	38
23	.09382	.99559	.11118	.99380	.12851	.99171	.14580	.98931	.16304	.98662	37
24	.09411	.99556	.11147	.99377	.12880	.99167	.14608	.98927	.16333	.98657	36
25	.09440	.99553	.11176	.99374	.12908	.99163	.14637	.98923	.16361	.98652	35
26	.09469	.99551	.11205	.99370	.12937	.99160	.14666	.98919	.16390	.98648	34
27	.09498	.99543	.11234	.99367	.12966	.99156	.14695	.98914	.16419	.98643	33
28	.09527	.99545	.11263	.99364	.12995	.99152	.14723	.98910	.16447	.98638	32
29	.09556	.99542	.11291	.99360	.13024	.99148	.14752	.98906	.16476	.98633	31
30	.09585	.99540	.11320	.99357	.13053	.99144	.14781	.98902	.16505	.98629	30
31	.09614	.99537	.11349	.99354	.13081	.99141	.14810	.98897	.16533	.98624	29
32	.09642	.99534	.11378	.99351	.13110	.99137	.14838	.98893	.16562	.98619	28
33	.09671	.99531	.11407	.99347	.13139	.99133	.14867	.98889	.16591	.98614	27
34	.09700	.99528	.11436	.99344	.13168	.99129	.14896	.98884	.16620	.98609	26
35	.09729	.99526	.11465	.99341	.13197	.99125	.14925	.98880	.16648	.98604	25
36	.09758	.99523	.11494	.99337	.13226	.99122	.14954	.98876	.16677	.98600	24
37	.09787	.99520	.11523	.99334	.13254	.99118	.14982	.98871	.16706	.98595	23
38	.09816	.99517	.11552	.99331	.13283	.99114	.15011	.98867	.16734	.98590	22
39	.09845	.99514	.11580	.99327	.13312	.99110	.15040	.98863	.16763	.98585	21
40	.09874	.99511	.11609	.99324	.13341	.99106	.15069	.98858	.16792	.98580	20
41	.09903	.99508	.11638	.99320	.13370	.99102	.15097	.98854	.16820	.98575	19
42	.09932	.99506	.11667	.99317	.13399	.99098	.15126	.98849	.16849	.98570	18
43	.09961	.99503	.11696	.99314	.13427	.99094	.15155	.98845	.16878	.98565	17
44	.09990	.99500	.11725	.99310	.13456	.99091	.15184	.98841	.16906	.98561	16
45	.10019	.99497	.11754	.99307	.13485	.99087	.15212	.98836	.16935	.98556	15
46	.10048	.99494	.11783	.99303	.13514	.99083	.15241	.98832	.16964	.98551	14
47	.10077	.99491	.11812	.99300	.13543	.99079	.15270	.98827	.16992	.98546	13
48	.10106	.99488	.11840	.99297	.13572	.99075	.15299	.98823	.17021	.98541	12
49	.10135	.99485	.11869	.99293	.13600	.99071	.15327	.98818	.17050	.98536	11
50	.10164	.99482	.11898	.99290	.13629	.99067	.15356	.98814	.17078	.98531	10
51	.10192	.99479	.11927	.99286	.13658	.99063	.15385	.98809	.17107	.98526	9
52	.10221	.99476	.11956	.99283	.13687	.99059	.15414	.98805	.17136	.98521	8
53	.10250	.99473	.11985	.99279	.13716	.99055	.15442	.98800	.17164	.98516	7
54	.10279	.99470	.12014	.99276	.13744	.99051	.15471	.98796	.17193	.98511	6
55	.10308	.99467	.12043	.99272	.13773	.99047	.15500	.98791	.17222	.98506	5
56	.10337	.99464	.12071	.99269	.13802	.99043	.15529	.98787	.17250	.98501	4
57	.10366	.99461	.12100	.99265	.13831	.99039	.15557	.98782	.17279	.98496	3
58	.10395	.99458	.12129	.99262	.13860	.99035	.15586	.98778	.17308	.98491	2
59	.10424	.99455	.12158	.99258	.13889	.99031	.15615	.98773	.17336	.98486	1
60	.10453	.99452	.12187	.99255	.13917	.99027	.15643	.98769	.17365	.98481	0
/	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	/
	84°		83°		82°		81°		80°		

NATURAL SINES AND COSINES

′	10°		11°		12°		13°		14°		′
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.17365	.98481	.19081	.98163	.20791	.97815	.22495	.97437	.24192	.97030	60
1	.17393	.98476	.19109	.98157	.20820	.97809	.22523	.97430	.24220	.97023	59
2	.17422	.98471	.19138	.98152	.20848	.97803	.22552	.97424	.24249	.97015	58
3	.17451	.98466	.19167	.98146	.20877	.97797	.22580	.97417	.24277	.97008	57
4	.17479	.98461	.19195	.98140	.20905	.97791	.22608	.97411	.24305	.97001	56
5	.17508	.98455	.19224	.98135	.20933	.97784	.22637	.97404	.24333	.96994	55
6	.17537	.98450	.19252	.98129	.20962	.97778	.22665	.97398	.24362	.96987	54
7	.17565	.98445	.19281	.98124	.20990	.97772	.22693	.97391	.24390	.96980	53
8	.17594	.98440	.19309	.98118	.21019	.97766	.22722	.97384	.24418	.96973	52
9	.17623	.98435	.19338	.98112	.21047	.97760	.22750	.97378	.24446	.96966	51
10	.17651	.98430	.19366	.98107	.21076	.97754	.22778	.97371	.24474	.96959	50
11	.17680	.98425	.19395	.98101	.21104	.97748	.22807	.97365	.24503	.96952	49
12	.17708	.98420	.19423	.98096	.21132	.97742	.22835	.97358	.24531	.96945	48
13	.17737	.98414	.19452	.98090	.21161	.97735	.22863	.97351	.24559	.96937	47
14	.17766	.98409	.19481	.98084	.21189	.97729	.22892	.97345	.24587	.96930	46
15	.17794	.98404	.19509	.98079	.21218	.97723	.22920	.97338	.24615	.96923	45
16	.17823	.98399	.19538	.98073	.21246	.97717	.22948	.97331	.24644	.96916	44
17	.17852	.98394	.19566	.98067	.21275	.97711	.22977	.97325	.24672	.96909	43
18	.17880	.98389	.19595	.98061	.21303	.97705	.23005	.97318	.24700	.96902	42
19	.17909	.98383	.19623	.98056	.21331	.97698	.23033	.97311	.24728	.96894	41
20	.17937	.98378	.19652	.98050	.21360	.97692	.23062	.97304	.24756	.96887	40
21	.17966	.98373	.19680	.98044	.21388	.97686	.23090	.97298	.24784	.96880	39
22	.17995	.98368	.19709	.98039	.21417	.97680	.23118	.97291	.24813	.96873	38
23	.18023	.98362	.19737	.98033	.21445	.97673	.23146	.97284	.24841	.96866	37
24	.18052	.98357	.19766	.98027	.21474	.97667	.23175	.97278	.24869	.96858	36
25	.18081	.98352	.19794	.98021	.21502	.97661	.23203	.97271	.24897	.96851	35
26	.18109	.98347	.19823	.98016	.21530	.97655	.23231	.97264	.24925	.96844	34
27	.18138	.98341	.19851	.98010	.21559	.97648	.23260	.97257	.24954	.96837	33
28	.18166	.98336	.19880	.98004	.21587	.97642	.23288	.97251	.24982	.96829	32
29	.18195	.98331	.19908	.97998	.21616	.97636	.23316	.97244	.25010	.96822	31
30	.18224	.98325	.19937	.97992	.21644	.97630	.23345	.97237	.25038	.96815	30
31	.18252	.98320	.19965	.97987	.21672	.97623	.23373	.97230	.25066	.96807	29
32	.18281	.98315	.19994	.97981	.21701	.97617	.23401	.97223	.25094	.96800	28
33	.18309	.98310	.20022	.97975	.21729	.97611	.23429	.97217	.25122	.96793	27
34	.18338	.98304	.20051	.97969	.21758	.97604	.23458	.97210	.25151	.96786	26
35	.18367	.98299	.20079	.97963	.21786	.97598	.23486	.97203	.25179	.96778	25
36	.18395	.98294	.20108	.97958	.21814	.97592	.23514	.97196	.25207	.96771	24
37	.18424	.98288	.20136	.97952	.21843	.97585	.23542	.97189	.25235	.96764	23
38	.18452	.98283	.20165	.97946	.21871	.97579	.23571	.97182	.25263	.96756	22
39	.18481	.98277	.20193	.97940	.21899	.97573	.23599	.97176	.25291	.96749	21
40	.18509	.98272	.20222	.97934	.21928	.97566	.23627	.97169	.25320	.96742	20
41	.18538	.98267	.20250	.97928	.21956	.97560	.23656	.97162	.25348	.96734	19
42	.18567	.98261	.20279	.97922	.21985	.97553	.23684	.97155	.25376	.96727	18
43	.18595	.98256	.20307	.97916	.22013	.97547	.23712	.97148	.25404	.96719	17
44	.18624	.98250	.20336	.97910	.22041	.97541	.23740	.97141	.25432	.96712	16
45	.18652	.98245	.20364	.97905	.22070	.97534	.23769	.97134	.25460	.96705	15
46	.18681	.98240	.20393	.97899	.22098	.97528	.23797	.97127	.25488	.96697	14
47	.18710	.98234	.20421	.97893	.22126	.97521	.23825	.97120	.25516	.96690	13
48	.18738	.98229	.20450	.97887	.22155	.97515	.23853	.97113	.25545	.96682	12
49	.18767	.98223	.20478	.97881	.22183	.97508	.23882	.97106	.25573	.96675	11
50	.18795	.98218	.20507	.97875	.22212	.97502	.23910	.97100	.25601	.96667	10
51	.18824	.98212	.20535	.97869	.22240	.97496	.23938	.97093	.25629	.96660	9
52	.18852	.98207	.20563	.97863	.22268	.97489	.23966	.97086	.25657	.96653	8
53	.18881	.98201	.20592	.97857	.22297	.97483	.23995	.97079	.25685	.96645	7
54	.18910	.98196	.20620	.97851	.22325	.97476	.24023	.97072	.25713	.96638	6
55	.18938	.98190	.20649	.97845	.22353	.97470	.24051	.97065	.25741	.96630	5
56	.18967	.98185	.20677	.97839	.22382	.97463	.24079	.97058	.25769	.96623	4
57	.18995	.98179	.20706	.97833	.22410	.97457	.24108	.97051	.25798	.96615	3
58	.19024	.98174	.20734	.97827	.22438	.97450	.24136	.97044	.25826	.96608	2
59	.19052	.98168	.20763	.97821	.22467	.97444	.24164	.97037	.25854	.96600	1
60	.19081	.98163	.20791	.97815	.22495	.97437	.24192	.97030	.25882	.96593	0
′	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	′
	79°		78°		77°		76°		75°		

NATURAL SINES AND COSINES

/	15°		16°		17°		18°		19°		/
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.25882	.96593	.27564	.96126	.29237	.95630	.30902	.95106	.32557	.94552	60
1	.25910	.96585	.27592	.96118	.29265	.95622	.30929	.95097	.32584	.94542	59
2	.25938	.96578	.27620	.96110	.29293	.95613	.30957	.95088	.32612	.94533	58
3	.25966	.96570	.27648	.96102	.29321	.95605	.30985	.95079	.32639	.94523	57
4	.25994	.96562	.27676	.96094	.29348	.95596	.31012	.95070	.32667	.94514	56
5	.26022	.96555	.27704	.96086	.29376	.95588	.31040	.95061	.32694	.94504	55
6	.26050	.96547	.27731	.96078	.29404	.95579	.31068	.95052	.32722	.94495	54
7	.26079	.96540	.27759	.96070	.29432	.95571	.31095	.95043	.32749	.94485	53
8	.26107	.96532	.27787	.96062	.29460	.95562	.31123	.95033	.32777	.94476	52
9	.26135	.96524	.27815	.96054	.29487	.95554	.31151	.95024	.32804	.94466	51
10	.26163	.96517	.27843	.96046	.29515	.95545	.31178	.95015	.32832	.94457	50
11	.26191	.96509	.27871	.96037	.29543	.95536	.31206	.95006	.32859	.94447	49
12	.26219	.96502	.27899	.96029	.29571	.95528	.31233	.94997	.32887	.94438	48
13	.26247	.96494	.27927	.96021	.29599	.95519	.31261	.94988	.32914	.94428	47
14	.26275	.96486	.27955	.96013	.29626	.95511	.31289	.94979	.32942	.94418	46
15	.26303	.96479	.27983	.96005	.29654	.95502	.31316	.94970	.32969	.94409	45
16	.26331	.96471	.28011	.95997	.29682	.95493	.31344	.94961	.32997	.94399	44
17	.26359	.96463	.28039	.95989	.29710	.95485	.31372	.94952	.33024	.94390	43
18	.26387	.96456	.28067	.95981	.29737	.95476	.31399	.94943	.33051	.94380	42
19	.26415	.96448	.28095	.95972	.29765	.95467	.31427	.94933	.33079	.94370	41
20	.26443	.96440	.28123	.95964	.29793	.95459	.31454	.94924	.33106	.94361	40
21	.26471	.96433	.28150	.95956	.29821	.95450	.31482	.94915	.33134	.94351	39
22	.26500	.96425	.28178	.95948	.29849	.95441	.31510	.94906	.33161	.94342	38
23	.26528	.96417	.28206	.95940	.29876	.95433	.31537	.94897	.33189	.94332	37
24	.26556	.96410	.28234	.95931	.29904	.95424	.31565	.94888	.33216	.94322	36
25	.26584	.96402	.28262	.95923	.29932	.95415	.31593	.94878	.33244	.94313	35
26	.26612	.96394	.28290	.95915	.29960	.95407	.31620	.94869	.33271	.94303	34
27	.26640	.96386	.28318	.95907	.29987	.95398	.31648	.94860	.33298	.94293	33
28	.26668	.96379	.28346	.95898	.30015	.95389	.31675	.94851	.33326	.94284	32
29	.26696	.96371	.28374	.95890	.30043	.95380	.31703	.94842	.33353	.94274	31
30	.26724	.96363	.28402	.95882	.30071	.95372	.31730	.94832	.33381	.94264	30
31	.26752	.96355	.28429	.95874	.30098	.95363	.31758	.94823	.33408	.94254	29
32	.26780	.96347	.28457	.95865	.30126	.95354	.31786	.94814	.33436	.94245	28
33	.26808	.96340	.28485	.95857	.30154	.95345	.31813	.94805	.33463	.94235	27
34	.26836	.96332	.28513	.95849	.30182	.95337	.31841	.94795	.33490	.94225	26
35	.26864	.96324	.28541	.95841	.30209	.95328	.31868	.94786	.33518	.94215	25
36	.26892	.96316	.28569	.95832	.30237	.95319	.31896	.94777	.33545	.94206	24
37	.26920	.96308	.28597	.95824	.30265	.95310	.31923	.94768	.33573	.94196	23
38	.26948	.96301	.28625	.95816	.30292	.95301	.31951	.94758	.33600	.94186	22
39	.26976	.96293	.28652	.95807	.30320	.95293	.31979	.94749	.33627	.94176	21
40	.27004	.96285	.28680	.95799	.30348	.95284	.32006	.94740	.33655	.94167	20
41	.27032	.96277	.28708	.95791	.30376	.95275	.32034	.94730	.33682	.94157	19
42	.27060	.96269	.28736	.95782	.30403	.95266	.32061	.94721	.33710	.94147	18
43	.27088	.96261	.28764	.95774	.30431	.95257	.32089	.94712	.33737	.94137	17
44	.27116	.96253	.28792	.95766	.30459	.95248	.32116	.94702	.33764	.94127	16
45	.27144	.96246	.28820	.95757	.30486	.95240	.32144	.94693	.33792	.94118	15
46	.27172	.96238	.28847	.95749	.30514	.95231	.32171	.94684	.33819	.94108	14
47	.27200	.96230	.28875	.95740	.30542	.95222	.32199	.94674	.33846	.94098	13
48	.27228	.96222	.28903	.95732	.30570	.95213	.32227	.94665	.33874	.94088	12
49	.27256	.96214	.28931	.95724	.30597	.95204	.32254	.94656	.33901	.94078	11
50	.27284	.96206	.28959	.95715	.30625	.95195	.32282	.94646	.33929	.94068	10
51	.27312	.96198	.28987	.95707	.30653	.95186	.32309	.94637	.33956	.94058	9
52	.27340	.96190	.29015	.95698	.30680	.95177	.32337	.94627	.33983	.94049	8
53	.27368	.96182	.29042	.95690	.30708	.95168	.32364	.94618	.34011	.94039	7
54	.27396	.96174	.29070	.95681	.30736	.95159	.32392	.94609	.34038	.94029	6
55	.27424	.96166	.29098	.95673	.30763	.95150	.32419	.94599	.34065	.94019	5
56	.27452	.96158	.29126	.95664	.30791	.95142	.32447	.94590	.34093	.94009	4
57	.27480	.96150	.29154	.95656	.30819	.95133	.32474	.94580	.34120	.93999	3
58	.27508	.96142	.29182	.95647	.30846	.95124	.32502	.94571	.34147	.93989	2
59	.27536	.96134	.29209	.95639	.30874	.95115	.32529	.94561	.34175	.93979	1
60	.27564	.96126	.29237	.95630	.30902	.95106	.32557	.94552	.34202	.93969	0
/	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	/
	74°		73°		72°		71°		70°		

NATURAL SINES AND COSINES

′	20°		21°		22°		23°		24°		′
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.34202	.93969	.35837	.93358	.37461	.92718	.39073	.92050	.40674	.91355	60
1	.34229	.93959	.35864	.93348	.37488	.92707	.39100	.92039	.40700	.91343	59
2	.34257	.93949	.35891	.93337	.37515	.92697	.39127	.92028	.40727	.91331	58
3	.34284	.93939	.35918	.93327	.37542	.92686	.39153	.92016	.40753	.91319	57
4	.34311	.93929	.35945	.93316	.37569	.92675	.39180	.92005	.40780	.91307	56
5	.34339	.93919	.35973	.93306	.37595	.92664	.39207	.91994	.40806	.91295	55
6	.34366	.93909	.36000	.93295	.37622	.92653	.39234	.91982	.40833	.91283	54
7	.34393	.93899	.36027	.93285	.37649	.92642	.39260	.91971	.40860	.91272	53
8	.34421	.93889	.36054	.93274	.37676	.92631	.39287	.91959	.40886	.91260	52
9	.34448	.93879	.36081	.93264	.37703	.92620	.39314	.91948	.40913	.91248	51
10	.34475	.93869	.36108	.93253	.37730	.92609	.39341	.91936	.40939	.91236	50
11	.34503	.93859	.36135	.93243	.37757	.92598	.39367	.91925	.40966	.91224	49
12	.34530	.93849	.36162	.93232	.37784	.92587	.39394	.91914	.40992	.91212	48
13	.34557	.93839	.36190	.93222	.37811	.92576	.39421	.91902	.41019	.91200	47
14	.34584	.93829	.36217	.93211	.37838	.92565	.39448	.91891	.41045	.91188	46
15	.34612	.93819	.36244	.93201	.37865	.92554	.39474	.91879	.41072	.91176	45
16	.34639	.93809	.36271	.93190	.37892	.92543	.39501	.91868	.41098	.91164	44
17	.34666	.93799	.36298	.93180	.37919	.92532	.39528	.91856	.41125	.91152	43
18	.34694	.93789	.36325	.93169	.37946	.92521	.39555	.91845	.41151	.91140	42
19	.34721	.93779	.36352	.93159	.37973	.92510	.39581	.91833	.41178	.91128	41
20	.34748	.93769	.36379	.93148	.37999	.92499	.39608	.91822	.41204	.91116	40
21	.34775	.93759	.36406	.93137	.38026	.92488	.39635	.91810	.41231	.91104	39
22	.34803	.93748	.36434	.93127	.38053	.92477	.39661	.91799	.41257	.91092	38
23	.34830	.93738	.36461	.93116	.38080	.92466	.39688	.91787	.41284	.91080	37
24	.34857	.93728	.36488	.93106	.38107	.92455	.39715	.91775	.41310	.91068	36
25	.34884	.93718	.36515	.93095	.38134	.92444	.39741	.91764	.41337	.91056	35
26	.34912	.93708	.36542	.93084	.38161	.92432	.39768	.91752	.41363	.91044	34
27	.34939	.93698	.36569	.93074	.38188	.92421	.39795	.91741	.41390	.91032	33
28	.34966	.93688	.36596	.93063	.38215	.92410	.39822	.91729	.41416	.91020	32
29	.34993	.93677	.36623	.93052	.38241	.92399	.39848	.91718	.41443	.91008	31
30	.35021	.93667	.36650	.93042	.38268	.92388	.39875	.91706	.41469	.90996	30
31	.35048	.93657	.36677	.93031	.38295	.92377	.39902	.91694	.41496	.90984	29
32	.35075	.93647	.36704	.93020	.38322	.92366	.39928	.91683	.41522	.90972	28
33	.35102	.93637	.36731	.93010	.38349	.92355	.39955	.91671	.41549	.90960	27
34	.35130	.93626	.36758	.92999	.38376	.92343	.39982	.91660	.41575	.90948	26
35	.35157	.93616	.36785	.92988	.38403	.92332	.40008	.91648	.41602	.90936	25
36	.35184	.93606	.36812	.92978	.38430	.92321	.40035	.91636	.41628	.90924	24
37	.35211	.93596	.36839	.92967	.38456	.92310	.40062	.91625	.41655	.90911	23
38	.35239	.93585	.36867	.92956	.38483	.92299	.40088	.91613	.41681	.90899	22
39	.35266	.93575	.36894	.92945	.38510	.92287	.40115	.91601	.41707	.90887	21
40	.35293	.93565	.36921	.92935	.38537	.92276	.40141	.91590	.41734	.90875	20
41	.35320	.93555	.36948	.92924	.38564	.92265	.40168	.91578	.41760	.90863	19
42	.35347	.93544	.36975	.92913	.38591	.92254	.40195	.91566	.41787	.90851	18
43	.35375	.93534	.37002	.92902	.38617	.92243	.40221	.91555	.41813	.90839	17
44	.35402	.93524	.37029	.92892	.38644	.92231	.40248	.91543	.41840	.90826	16
45	.35429	.93514	.37056	.92881	.38671	.92220	.40275	.91531	.41866	.90814	15
46	.35456	.93503	.37083	.92870	.38698	.92209	.40301	.91519	.41892	.90802	14
47	.35484	.93493	.37110	.92859	.38725	.92198	.40328	.91508	.41919	.90790	13
48	.35511	.93483	.37137	.92849	.38752	.92186	.40355	.91496	.41945	.90778	12
49	.35538	.93472	.37164	.92838	.38778	.92175	.40381	.91484	.41972	.90766	11
50	.35565	.93462	.37191	.92827	.38805	.92164	.40408	.91472	.41998	.90753	10
51	.35592	.93452	.37218	.92816	.38832	.92152	.40434	.91461	.42024	.90741	9
52	.35619	.93441	.37245	.92805	.38859	.92141	.40461	.91449	.42051	.90729	8
53	.35647	.93431	.37272	.92794	.38886	.92130	.40488	.91437	.42077	.90717	7
54	.35674	.93420	.37299	.92784	.38912	.92119	.40514	.91425	.42104	.90704	6
55	.35701	.93410	.37326	.92773	.38939	.92107	.40541	.91414	.42130	.90692	5
56	.35728	.93400	.37353	.92762	.38966	.92096	.40567	.91402	.42156	.90680	4
57	.35755	.93389	.37380	.92751	.38993	.92085	.40594	.91390	.42183	.90668	3
58	.35782	.93379	.37407	.92740	.39020	.92073	.40621	.91378	.42209	.90655	2
59	.35810	.93368	.37434	.92729	.39046	.92062	.40647	.91366	.42235	.90643	1
60	.35837	.93358	.37461	.92718	.39073	.92050	.40674	.91355	.42262	.90631	0
′	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	′
	69°		68°		67°		66°		65°		

NATURAL SINES AND COSINES

/	25°		26°		27°		28°		29°		/
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.42262	.90631	.43837	.89879	.45399	.89101	.46947	.88295	.48481	.87462	60
1	.42288	.90618	.43863	.89867	.45425	.89087	.46973	.88281	.48506	.87448	59
2	.42315	.90606	.43889	.89854	.45451	.89074	.46999	.88267	.48532	.87434	58
3	.42341	.90594	.43916	.89841	.45477	.89061	.47024	.88254	.48557	.87420	57
4	.42367	.90582	.43942	.89828	.45503	.89048	.47050	.88240	.48583	.87406	56
5	.42394	.90569	.43968	.89816	.45529	.89035	.47076	.88226	.48608	.87391	55
6	.42420	.90557	.43994	.89803	.45554	.89021	.47101	.88213	.48634	.87377	54
7	.42446	.90545	.44020	.89790	.45580	.89008	.47127	.88199	.48659	.87363	53
8	.42473	.90532	.44046	.89777	.45606	.88995	.47153	.88185	.48684	.87349	52
9	.42499	.90520	.44072	.89764	.45632	.88981	.47178	.88172	.48710	.87335	51
10	.42525	.90507	.44098	.89752	.45658	.88968	.47204	.88158	.48735	.87321	50
11	.42552	.90495	.44124	.89739	.45684	.88955	.47229	.88144	.48761	.87306	49
12	.42578	.90483	.44151	.89726	.45710	.88942	.47255	.88130	.48786	.87292	48
13	.42604	.90470	.44177	.89713	.45736	.88928	.47281	.88117	.48811	.87278	47
14	.42631	.90458	.44203	.89700	.45762	.88915	.47306	.88103	.48837	.87264	46
15	.42657	.90446	.44229	.89687	.45787	.88902	.47332	.88089	.48862	.87250	45
16	.42683	.90433	.44255	.89674	.45813	.88888	.47358	.88075	.48888	.87235	44
17	.42709	.90421	.44281	.89662	.45839	.88875	.47383	.88062	.48913	.87221	43
18	.42736	.90408	.44307	.89649	.45865	.88862	.47409	.88048	.48938	.87207	42
19	.42762	.90396	.44333	.89636	.45891	.88848	.47434	.88034	.48964	.87193	41
20	.42788	.90383	.44359	.89623	.45917	.88835	.47460	.88020	.48989	.87178	40
21	.42815	.90371	.44385	.89610	.45942	.88822	.47486	.88006	.49014	.87164	39
22	.42841	.90358	.44411	.89597	.45968	.88808	.47511	.87993	.49040	.87150	38
23	.42867	.90346	.44437	.89584	.45994	.88795	.47537	.87979	.49065	.87136	37
24	.42894	.90334	.44464	.89571	.46020	.88782	.47562	.87965	.49090	.87121	36
25	.42920	.90321	.44490	.89558	.46046	.88768	.47588	.87951	.49116	.87107	35
26	.42946	.90309	.44516	.89545	.46072	.88755	.47614	.87937	.49141	.87093	34
27	.42972	.90296	.44542	.89532	.46097	.88741	.47639	.87923	.49166	.87079	33
28	.42999	.90284	.44568	.89519	.46123	.88728	.47665	.87909	.49192	.87064	32
29	.43025	.90271	.44594	.89506	.46149	.88715	.47690	.87896	.49217	.87050	31
30	.43051	.90259	.44620	.89493	.46175	.88701	.47716	.87882	.49242	.87036	30
31	.43077	.90246	.44646	.89480	.46201	.88688	.47741	.87868	.49268	.87021	29
32	.43104	.90233	.44672	.89467	.46226	.88674	.47767	.87854	.49293	.87007	28
33	.43130	.90221	.44698	.89454	.46252	.88661	.47793	.87840	.49318	.86993	27
34	.43156	.90208	.44724	.89441	.46278	.88647	.47818	.87826	.49344	.86978	26
35	.43182	.90196	.44750	.89428	.46304	.88634	.47844	.87812	.49369	.86964	25
36	.43209	.90183	.44776	.89415	.46330	.88620	.47869	.87798	.49394	.86949	24
37	.43235	.90171	.44802	.89402	.46355	.88607	.47895	.87784	.49419	.86935	23
38	.43261	.90158	.44828	.89389	.46381	.88593	.47920	.87770	.49445	.86921	22
39	.43287	.90146	.44854	.89376	.46407	.88580	.47946	.87756	.49470	.86906	21
40	.43313	.90133	.44880	.89363	.46433	.88566	.47971	.87743	.49495	.86892	20
41	.43340	.90120	.44906	.89350	.46458	.88553	.47997	.87729	.49521	.86878	19
42	.43366	.90108	.44932	.89337	.46484	.88539	.48022	.87715	.49546	.86863	18
43	.43392	.90095	.44958	.89324	.46510	.88526	.48048	.87701	.49571	.86849	17
44	.43418	.90082	.44984	.89311	.46536	.88512	.48073	.87687	.49596	.86834	16
45	.43445	.90070	.45010	.89298	.46561	.88499	.48099	.87673	.49622	.86820	15
46	.43471	.90057	.45036	.89285	.46587	.88485	.48124	.87659	.49647	.86805	14
47	.43497	.90045	.45062	.89272	.46613	.88472	.48150	.87645	.49672	.86791	13
48	.43523	.90032	.45088	.89259	.46639	.88458	.48175	.87631	.49697	.86777	12
49	.43549	.90019	.45114	.89245	.46664	.88445	.48201	.87617	.49723	.86762	11
50	.43575	.90007	.45140	.89232	.46690	.88431	.48226	.87603	.49748	.86748	10
51	.43602	.89994	.45166	.89219	.46716	.88417	.48252	.87589	.49773	.86733	9
52	.43628	.89981	.45192	.89206	.46742	.88404	.48277	.87575	.49798	.86719	8
53	.43654	.89968	.45218	.89193	.46767	.88390	.48303	.87561	.49824	.86704	7
54	.43680	.89956	.45243	.89180	.46793	.88377	.48328	.87546	.49849	.86690	6
55	.43706	.89943	.45269	.89167	.46819	.88363	.48354	.87532	.49874	.86675	5
56	.43733	.89930	.45295	.89153	.46844	.88349	.48379	.87518	.49899	.86661	4
57	.43759	.89918	.45321	.89140	.46870	.88336	.48405	.87504	.49924	.86646	3
58	.43785	.89905	.45347	.89127	.46896	.88322	.48430	.87490	.49950	.86632	2
59	.43811	.89892	.45373	.89114	.46921	.88308	.48456	.87476	.49975	.86617	1
60	.43837	.89879	.45399	.89101	.46947	.88295	.48481	.87462	.50000	.86603	0
/	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	/
	64°		63°		62°		61°		60°		

NATURAL SINES AND COSINES

′	30°		31°		32°		33°		34°		′
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.50000	.86603	.51504	.85717	.52992	.84805	.54464	.83867	.55919	.82904	60
1	.50025	.86588	.51529	.85702	.53017	.84789	.54488	.83851	.55943	.82887	59
2	.50050	.86573	.51554	.85687	.53041	.84774	.54513	.83835	.55968	.82871	58
3	.50076	.86559	.51579	.85672	.53066	.84759	.54537	.83819	.55992	.82855	57
4	.50101	.86544	.51604	.85657	.53091	.84743	.54561	.83804	.56016	.82839	56
5	.50126	.86530	.51628	.85642	.53115	.84728	.54586	.83788	.56040	.82822	55
6	.50151	.86515	.51653	.85627	.53140	.84712	.54610	.83772	.56064	.82806	54
7	.50176	.86501	.51678	.85612	.53164	.84697	.54635	.83756	.56088	.82790	53
8	.50201	.86486	.51703	.85597	.53189	.84681	.54659	.83740	.56112	.82773	52
9	.50227	.86471	.51728	.85582	.53214	.84666	.54683	.83724	.56136	.82757	51
10	.50252	.86457	.51753	.85567	.53238	.84650	.54708	.83708	.56160	.82741	50
11	.50277	.86442	.51778	.85551	.53263	.84635	.54732	.83692	.56184	.82724	49
12	.50302	.86427	.51803	.85536	.53288	.84619	.54756	.83676	.56208	.82708	48
13	.50327	.86413	.51828	.85521	.53312	.84604	.54781	.83660	.56232	.82692	47
14	.50352	.86398	.51852	.85506	.53337	.84588	.54805	.83645	.56256	.82675	46
15	.50377	.86384	.51877	.85491	.53361	.84573	.54829	.83629	.56280	.82659	45
16	.50403	.86369	.51902	.85476	.53386	.84557	.54854	.83613	.56305	.82643	44
17	.50428	.86354	.51927	.85461	.53411	.84542	.54878	.83597	.56329	.82626	43
18	.50453	.86340	.51952	.85446	.53435	.84526	.54902	.83581	.56353	.82610	42
19	.50478	.86325	.51977	.85431	.53460	.84511	.54927	.83565	.56377	.82593	41
20	.50503	.86310	.52002	.85416	.53484	.84495	.54951	.83549	.56401	.82577	40
21	.50528	.86295	.52026	.85401	.53509	.84480	.54975	.83533	.56425	.82561	39
22	.50553	.86281	.52051	.85385	.53534	.84464	.54999	.83517	.56449	.82544	38
23	.50578	.86266	.52076	.85370	.53558	.84448	.55024	.83501	.56473	.82528	37
24	.50603	.86251	.52101	.85355	.53583	.84433	.55048	.83485	.56497	.82511	36
25	.50628	.86237	.52126	.85340	.53607	.84417	.55072	.83469	.56521	.82495	35
26	.50654	.86222	.52151	.85325	.53632	.84402	.55097	.83453	.56545	.82478	34
27	.50679	.86207	.52175	.85310	.53656	.84386	.55121	.83437	.56569	.82462	33
28	.50704	.86192	.52200	.85294	.53681	.84370	.55145	.83421	.56593	.82446	32
29	.50729	.86178	.52225	.85279	.53705	.84355	.55169	.83405	.56617	.82429	31
30	.50754	.86163	.52250	.85264	.53730	.84339	.55194	.83389	.56641	.82413	30
31	.50779	.86148	.52275	.85249	.53754	.84324	.55218	.83373	.56665	.82396	29
32	.50804	.86133	.52299	.85234	.53779	.84308	.55242	.83356	.56689	.82380	28
33	.50829	.86119	.52324	.85218	.53804	.84292	.55266	.83340	.56713	.82363	27
34	.50854	.86104	.52349	.85203	.53828	.84277	.55291	.83324	.56736	.82347	26
35	.50879	.86089	.52374	.85188	.53853	.84261	.55315	.83308	.56760	.82330	25
36	.50904	.86074	.52399	.85173	.53877	.84245	.55339	.83292	.56784	.82314	24
37	.50929	.86059	.52423	.85157	.53902	.84230	.55363	.83276	.56808	.82297	23
38	.50954	.86045	.52448	.85142	.53926	.84214	.55388	.83260	.56832	.82281	22
39	.50979	.86030	.52473	.85127	.53951	.84198	.55412	.83244	.56856	.82264	21
40	.51004	.86015	.52498	.85112	.53975	.84182	.55436	.83228	.56880	.82248	20
41	.51029	.86000	.52522	.85096	.54000	.84167	.55460	.83212	.56904	.82231	19
42	.51054	.85985	.52547	.85081	.54024	.84151	.55484	.83195	.56928	.82214	18
43	.51079	.85970	.52572	.85066	.54049	.84135	.55509	.83179	.56952	.82198	17
44	.51104	.85956	.52597	.85051	.54073	.84120	.55533	.83163	.56976	.82181	16
45	.51129	.85941	.52621	.85035	.54097	.84104	.55557	.83147	.57000	.82165	15
46	.51154	.85926	.52646	.85020	.54122	.84088	.55581	.83131	.57024	.82148	14
47	.51179	.85911	.52671	.85005	.54146	.84072	.55605	.83115	.57047	.82132	13
48	.51204	.85896	.52696	.84989	.54171	.84057	.55630	.83098	.57071	.82115	12
49	.51229	.85881	.52720	.84974	.54195	.84041	.55654	.83082	.57095	.82098	11
50	.51254	.85866	.52745	.84959	.54220	.84025	.55678	.83066	.57119	.82082	10
51	.51279	.85851	.52770	.84943	.54244	.84009	.55702	.83050	.57143	.82065	9
52	.51304	.85836	.52794	.84928	.54269	.83994	.55726	.83034	.57167	.82048	8
53	.51329	.85821	.52819	.84913	.54293	.83978	.55750	.83017	.57191	.82032	7
54	.51354	.85806	.52844	.84897	.54317	.83962	.55775	.83001	.57215	.82015	6
55	.51379	.85792	.52869	.84882	.54342	.83946	.55799	.82985	.57238	.81999	5
56	.51404	.85777	.52893	.84866	.54366	.83930	.55823	.82969	.57262	.81982	4
57	.51429	.85762	.52918	.84851	.54391	.83915	.55847	.82953	.57286	.81965	3
58	.51454	.85747	.52943	.84836	.54415	.83899	.55871	.82936	.57310	.81949	2
59	.51479	.85732	.52967	.84820	.54440	.83883	.55895	.82920	.57334	.81932	1
60	.51504	.85717	.52992	.84805	.54464	.83867	.55919	.82904	.57358	.81915	0
′	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	′
	59°		58°		57°		56°		55°		

NATURAL SINES AND COSINES

′	35°		36°		37°		38°		39°		′
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.57358	.81915	.58779	.80902	.60182	.79864	.61566	.78801	.62932	.77715	60
1	.57381	.81899	.58802	.80885	.60205	.79846	.61589	.78783	.62955	.77696	59
2	.57405	.81882	.58826	.80867	.60228	.79829	.61612	.78765	.62977	.77678	58
3	.57429	.81865	.58849	.80850	.60251	.79811	.61635	.78747	.63000	.77660	57
4	.57453	.81848	.58873	.80833	.60274	.79793	.61658	.78729	.63022	.77641	56
5	.57477	.81832	.58896	.80816	.60298	.79776	.61681	.78711	.63045	.77623	55
6	.57501	.81815	.58920	.80799	.60321	.79758	.61704	.78694	.63068	.77605	54
7	.57524	.81798	.58943	.80782	.60344	.79741	.61726	.78676	.63090	.77586	53
8	.57548	.81782	.58967	.80765	.60367	.79723	.61749	.78658	.63113	.77568	52
9	.57572	.81765	.58990	.80748	.60390	.79706	.61772	.78640	.63135	.77550	51
10	.57596	.81748	.59014	.80730	.60414	.79688	.61795	.78622	.63158	.77531	50
11	.57619	.81731	.59037	.80713	.60437	.79671	.61818	.78604	.63180	.77513	49
12	.57643	.81714	.59061	.80696	.60460	.79653	.61841	.78586	.63203	.77494	48
13	.57667	.81698	.59084	.80679	.60483	.79635	.61864	.78568	.63225	.77476	47
14	.57691	.81681	.59108	.80662	.60506	.79618	.61887	.78550	.63248	.77458	46
15	.57715	.81664	.59131	.80644	.60529	.79600	.61909	.78532	.63271	.77439	45
16	.57738	.81647	.59154	.80627	.60553	.79583	.61932	.78514	.63293	.77421	44
17	.57762	.81631	.59178	.80610	.60576	.79565	.61955	.78496	.63316	.77402	43
18	.57786	.81614	.59201	.80593	.60599	.79547	.61978	.78478	.63338	.77384	42
19	.57810	.81597	.59225	.80576	.60622	.79530	.62001	.78460	.63361	.77366	41
20	.57833	.81580	.59248	.80558	.60645	.79512	.62024	.78442	.63383	.77347	40
21	.57857	.81563	.59272	.80541	.60668	.79494	.62046	.78424	.63406	.77329	39
22	.57881	.81546	.59295	.80524	.60691	.79477	.62069	.78405	.63428	.77310	38
23	.57904	.81530	.59318	.80507	.60714	.79459	.62092	.78387	.63451	.77292	37
24	.57928	.81513	.59342	.80489	.60738	.79441	.62115	.78369	.63473	.77273	36
25	.57952	.81496	.59365	.80472	.60761	.79424	.62138	.78351	.63496	.77255	35
26	.57976	.81479	.59389	.80455	.60784	.79406	.62160	.78333	.63518	.77236	34
27	.57999	.81462	.59412	.80438	.60807	.79388	.62183	.78315	.63540	.77218	33
28	.58023	.81445	.59436	.80420	.60830	.79371	.62206	.78297	.63563	.77199	32
29	.58047	.81428	.59459	.80403	.60853	.79353	.62229	.78279	.63585	.77181	31
30	.58070	.81412	.59482	.80386	.60876	.79335	.62251	.78261	.63608	.77162	30
31	.58094	.81395	.59506	.80368	.60899	.79318	.62274	.78243	.63630	.77144	29
32	.58118	.81378	.59529	.80351	.60922	.79300	.62297	.78225	.63653	.77125	28
33	.58141	.81361	.59552	.80334	.60945	.79282	.62320	.78206	.63675	.77107	27
34	.58165	.81344	.59576	.80316	.60968	.79264	.62342	.78188	.63698	.77088	26
35	.58189	.81327	.59599	.80299	.60991	.79247	.62365	.78170	.63720	.77070	25
36	.58212	.81310	.59622	.80282	.61015	.79229	.62388	.78152	.63742	.77051	24
37	.58236	.81293	.59646	.80264	.61038	.79211	.62411	.78134	.63765	.77033	23
38	.58260	.81276	.59669	.80247	.61061	.79193	.62433	.78116	.63787	.77014	22
39	.58283	.81259	.59693	.80230	.61084	.79176	.62456	.78098	.63810	.76996	21
40	.58307	.81242	.59716	.80212	.61107	.79158	.62479	.78079	.63832	.76977	20
41	.58330	.81225	.59739	.80195	.61130	.79140	.62502	.78061	.63854	.76959	19
42	.58354	.81208	.59763	.80178	.61153	.79122	.62524	.78043	.63877	.76940	18
43	.58378	.81191	.59786	.80160	.61176	.79105	.62547	.78025	.63899	.76921	17
44	.58401	.81174	.59809	.80143	.61199	.79087	.62570	.78007	.63922	.76903	16
45	.58425	.81157	.59832	.80125	.61222	.79069	.62592	.77988	.63944	.76884	15
46	.58449	.81140	.59856	.80108	.61245	.79051	.62615	.77970	.63966	.76866	14
47	.58472	.81123	.59879	.80091	.61268	.79033	.62638	.77952	.63989	.76847	13
48	.58496	.81106	.59902	.80073	.61291	.79016	.62660	.77934	.64011	.76828	12
49	.58519	.81089	.59926	.80056	.61314	.78998	.62683	.77916	.64033	.76810	11
50	.58543	.81072	.59949	.80038	.61337	.78980	.62706	.77897	.64056	.76791	10
51	.58567	.81055	.59972	.80021	.61360	.78962	.62728	.77879	.64078	.76772	9
52	.58590	.81038	.59995	.80003	.61383	.78944	.62751	.77861	.64100	.76754	8
53	.58614	.81021	.60019	.79986	.61406	.78926	.62774	.77843	.64123	.76735	7
54	.58637	.81004	.60042	.79968	.61429	.78908	.62796	.77824	.64145	.76717	6
55	.58661	.80987	.60065	.79951	.61451	.78891	.62819	.77806	.64167	.76698	5
56	.58684	.80970	.60089	.79934	.61474	.78873	.62842	.77788	.64190	.76679	4
57	.58708	.80953	.60112	.79916	.61497	.78855	.62864	.77769	.64212	.76661	3
58	.58731	.80936	.60135	.79899	.61520	.78837	.62887	.77751	.64234	.76642	2
59	.58755	.80919	.60158	.79881	.61543	.78819	.62909	.77733	.64256	.76623	1
60	.58779	.80902	.60182	.79864	.61566	.78801	.62932	.77715	.64279	.76604	0
′	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	′
	54°		53°		52°		51°		50°		

NATURAL SINES AND COSINES

′	40°		41°		42°		43°		44°		′
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.64279	.76604	.65606	.75471	.66913	.74314	.68200	.73135	.69466	.71934	60
1	.64301	.76586	.65628	.75452	.66935	.74295	.68221	.73116	.69487	.71914	59
2	.64323	.76567	.65650	.75433	.66956	.74276	.68242	.73096	.69508	.71894	58
3	.64346	.76548	.65672	.75414	.66978	.74256	.68264	.73076	.69529	.71873	57
4	.64368	.76530	.65694	.75395	.66999	.74237	.68285	.73056	.69549	.71853	56
5	.64390	.76511	.65716	.75375	.67021	.74217	.68306	.73036	.69570	.71833	55
6	.64412	.76492	.65738	.75356	.67043	.74198	.68327	.73016	.69591	.71813	54
7	.64435	.76473	.65759	.75337	.67064	.74178	.68349	.72996	.69612	.71792	53
8	.64457	.76455	.65781	.75318	.67086	.74159	.68370	.72976	.69633	.71772	52
9	.64479	.76436	.65803	.75299	.67107	.74139	.68391	.72957	.69654	.71752	51
10	.64501	.76417	.65825	.75280	.67129	.74120	.68412	.72937	.69675	.71732	50
11	.64524	.76398	.65847	.75261	.67151	.74100	.68434	.72917	.69696	.71711	49
12	.64546	.76380	.65869	.75241	.67172	.74080	.68455	.72897	.69717	.71691	48
13	.64568	.76361	.65891	.75222	.67194	.74061	.68476	.72877	.69737	.71671	47
14	.64590	.76342	.65913	.75203	.67215	.74041	.68497	.72857	.69758	.71650	46
15	.64612	.76323	.65935	.75184	.67237	.74022	.68518	.72837	.69779	.71630	45
16	.64635	.76304	.65956	.75165	.67258	.74002	.68539	.72817	.69800	.71610	44
17	.64657	.76286	.65978	.75146	.67280	.73983	.68561	.72797	.69821	.71590	43
18	.64679	.76267	.66000	.75126	.67301	.73963	.68582	.72777	.69842	.71569	42
19	.64701	.76248	.66022	.75107	.67323	.73944	.68603	.72757	.69862	.71549	41
20	.64723	.76229	.66044	.75088	.67344	.73924	.68624	.72737	.69883	.71529	40
21	.64746	.76210	.66066	.75069	.67366	.73904	.68645	.72717	.69904	.71508	39
22	.64768	.76192	.66088	.75050	.67387	.73885	.68666	.72697	.69925	.71488	38
23	.64790	.76173	.66109	.75030	.67409	.73865	.68688	.72677	.69946	.71468	37
24	.64812	.76154	.66131	.75011	.67430	.73846	.68709	.72657	.69966	.71447	36
25	.64834	.76135	.66153	.74992	.67452	.73826	.68730	.72637	.69987	.71427	35
26	.64856	.76116	.66175	.74973	.67473	.73806	.68751	.72617	.70008	.71407	34
27	.64878	.76097	.66197	.74953	.67495	.73787	.68772	.72597	.70029	.71386	33
28	.64901	.76078	.66218	.74934	.67516	.73767	.68793	.72577	.70049	.71366	32
29	.64923	.76059	.66240	.74915	.67538	.73747	.68814	.72557	.70070	.71345	31
30	.64945	.76041	.66262	.74896	.67559	.73728	.68835	.72537	.70091	.71325	30
31	.64967	.76022	.66284	.74876	.67580	.73708	.68857	.72517	.70112	.71305	29
32	.64989	.76003	.66306	.74857	.67602	.73688	.68878	.72497	.70132	.71284	28
33	.65011	.75984	.66327	.74838	.67623	.73669	.68899	.72477	.70153	.71264	27
34	.65033	.75965	.66349	.74818	.67645	.73649	.68920	.72457	.70174	.71243	26
35	.65055	.75946	.66371	.74799	.67666	.73629	.68941	.72437	.70195	.71223	25
36	.65077	.75927	.66393	.74780	.67688	.73610	.68962	.72417	.70215	.71203	24
37	.65100	.75908	.66414	.74760	.67709	.73590	.68983	.72397	.70236	.71182	23
38	.65122	.75889	.66436	.74741	.67730	.73570	.69004	.72377	.70257	.71162	22
39	.65144	.75870	.66458	.74722	.67752	.73551	.69025	.72357	.70277	.71141	21
40	.65166	.75851	.66480	.74703	.67773	.73531	.69046	.72337	.70298	.71121	20
41	.65188	.75832	.66501	.74683	.67795	.73511	.69067	.72317	.70319	.71100	19
42	.65210	.75813	.66523	.74664	.67816	.73491	.69088	.72297	.70339	.71080	18
43	.65232	.75794	.66545	.74644	.67837	.73472	.69109	.72277	.70360	.71059	17
44	.65254	.75775	.66566	.74625	.67859	.73452	.69130	.72257	.70381	.71039	16
45	.65276	.75756	.66588	.74606	.67880	.73432	.69151	.72236	.70401	.71019	15
46	.65298	.75738	.66610	.74586	.67901	.73413	.69172	.72216	.70422	.70998	14
47	.65320	.75719	.66632	.74567	.67923	.73393	.69193	.72196	.70443	.70978	13
48	.65342	.75700	.66653	.74548	.67944	.73373	.69214	.72176	.70463	.70957	12
49	.65364	.75680	.66675	.74528	.67965	.73353	.69235	.72156	.70484	.70937	11
50	.65386	.75661	.66697	.74509	.67987	.73333	.69256	.72136	.70505	.70916	10
51	.65408	.75642	.66718	.74489	.68008	.73314	.69277	.72116	.70525	.70896	9
52	.65430	.75623	.66740	.74470	.68029	.73294	.69298	.72095	.70546	.70875	8
53	.65452	.75604	.66762	.74451	.68051	.73274	.69319	.72075	.70567	.70855	7
54	.65474	.75585	.66783	.74431	.68072	.73254	.69340	.72055	.70587	.70834	6
55	.65496	.75566	.66805	.74412	.68093	.73234	.69361	.72035	.70608	.70813	5
56	.65518	.75547	.66827	.74392	.68115	.73215	.69382	.72015	.70628	.70793	4
57	.65540	.75528	.66848	.74373	.68136	.73195	.69403	.71995	.70649	.70772	3
58	.65562	.75509	.66870	.74353	.68157	.73175	.69424	.71974	.70670	.70752	2
59	.65584	.75490	.66891	.74334	.68179	.73155	.69445	.71954	.70690	.70731	1
60	.65606	.75471	.66913	.74314	.68200	.73135	.69466	.71934	.70711	.70711	0
′	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	′
	49°		48°		47°		46°		45°		

NATURAL TANGENTS AND COTANGENTS

/	0°		1°		2°		3°		4°		/
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.00000	Infinite	.01746	57.2900	.03492	28.6363	.05241	19.0811	.06993	14.3007	60
1	.00029	3437.75	.01775	56.3506	.03521	28.3994	.05270	18.9755	.07022	14.2411	59
2	.00058	1718.87	.01804	55.4415	.03550	28.1664	.05299	18.8711	.07051	14.1821	58
3	.00087	1145.92	.01833	54.5613	.03579	27.9372	.05328	18.7678	.07080	14.1235	57
4	.00116	859.436	.01862	53.7086	.03609	27.7117	.05357	18.6656	.07110	14.0655	56
5	.00145	687.549	.01891	52.8821	.03638	27.4899	.05387	18.5645	.07139	14.0079	55
6	.00175	572.957	.01920	52.0807	.03667	27.2715	.05416	18.4645	.07168	13.9507	54
7	.00204	491.106	.01949	51.3032	.03696	27.0566	.05445	18.3655	.07197	13.8940	53
8	.00233	429.718	.01978	50.5485	.03725	26.8450	.05474	18.2677	.07227	13.8378	52
9	.00262	381.971	.02007	49.8157	.03754	26.6367	.05503	18.1708	.07256	13.7821	51
10	.00291	343.774	.02036	49.1039	.03783	26.4316	.05533	18.0750	.07285	13.7267	50
11	.00320	312.521	.02066	48.4121	.03812	26.2296	.05562	17.9802	.07314	13.6719	49
12	.00349	286.478	.02005	47.7395	.03842	26.0307	.05591	17.8863	.07344	13.6174	48
13	.00378	264.441	.02124	47.0853	.03871	25.8348	.05620	17.7934	.07373	13.5634	47
14	.00407	245.552	.02153	46.4489	.03900	25.6418	.05649	17.7015	.07402	13.5098	46
15	.00436	229.182	.02182	45.8294	.03929	25.4517	.05678	17.6106	.07431	13.4566	45
16	.00465	214.858	.02211	45.2261	.03958	25.2644	.05708	17.5205	.07461	13.4039	44
17	.00495	202.219	.02240	44.6386	.03987	25.0798	.05737	17.4314	.07490	13.3515	43
18	.00524	190.984	.02269	44.0661	.04016	24.8978	.05766	17.3432	.07519	13.2996	42
19	.00553	180.932	.02298	43.5081	.04046	24.7185	.05795	17.2558	.07548	13.2480	41
20	.00582	171.885	.02328	42.9641	.04075	24.5418	.05824	17.1693	.07578	13.1969	40
21	.00611	163.700	.02357	42.4335	.04104	24.3675	.05854	17.0837	.07607	13.1461	39
22	.00640	156.259	.02386	41.9158	.04133	24.1957	.05883	16.9990	.07636	13.0958	38
23	.00669	149.465	.02415	41.4106	.04162	24.0263	.05912	16.9150	.07665	13.0458	37
24	.00698	143.237	.02444	40.9174	.04191	23.8593	.05941	16.8319	.07695	12.9962	36
25	.00727	137.507	.02473	40.4358	.04220	23.6945	.05970	16.7496	.07724	12.9469	35
26	.00756	132.219	.02502	39.9655	.04250	23.5321	.05999	16.6681	.07753	12.8981	34
27	.00785	127.321	.02531	39.5059	.04279	23.3718	.06029	16.5874	.07782	12.8496	33
28	.00815	122.774	.02560	39.0568	.04308	23.2137	.06058	16.5075	.07812	12.8014	32
29	.00844	118.540	.02589	38.6177	.04337	23.0577	.06087	16.4283	.07841	12.7536	31
30	.00873	114.589	.02619	38.1885	.04366	22.9038	.06116	16.3499	.07870	12.7062	30
31	.00902	110.892	.02648	37.7686	.04395	22.7519	.06145	16.2722	.07899	12.6591	29
32	.00931	107.426	.02677	37.3579	.04424	22.6020	.06175	16.1952	.07929	12.6124	28
33	.00960	104.171	.02706	36.9560	.04454	22.4541	.06204	16.1190	.07958	12.5660	27
34	.00989	101.107	.02735	36.5627	.04483	22.3081	.06233	16.0435	.07987	12.5199	26
35	.01018	98.2179	.02764	36.1776	.04512	22.1640	.06262	15.9687	.08017	12.4742	25
36	.01047	95.4895	.02793	35.8006	.04541	22.0217	.06291	15.8945	.08046	12.4288	24
37	.01076	92.9085	.02822	35.4313	.04570	21.8813	.06321	15.8211	.08075	12.3838	23
38	.01105	90.4633	.02851	35.0695	.04599	21.7426	.06350	15.7483	.08104	12.3390	22
39	.01135	88.1436	.02881	34.7151	.04628	21.6056	.06379	15.6762	.08134	12.2946	21
40	.01164	85.9398	.02910	34.3678	.04658	21.4704	.06408	15.6048	.08163	12.2505	20
41	.01193	83.8435	.02939	34.0273	.04687	21.3369	.06437	15.5340	.08192	12.2067	19
42	.01222	81.8470	.02968	33.6935	.04716	21.2049	.06467	15.4638	.08221	12.1632	18
43	.01251	79.9434	.02997	33.3662	.04745	21.0747	.06496	15.3943	.08251	12.1201	17
44	.01280	78.1263	.03026	33.0452	.04774	20.9460	.06525	15.3254	.08280	12.0772	16
45	.01309	76.3900	.03055	32.7303	.04803	20.8188	.06554	15.2571	.08309	12.0346	15
46	.01338	74.7292	.03084	32.4213	.04833	20.6932	.06584	15.1893	.08339	11.9923	14
47	.01367	73.1390	.03114	32.1181	.04862	20.5691	.06613	15.1222	.08368	11.9504	13
48	.01396	71.6151	.03143	31.8205	.04891	20.4465	.06642	15.0557	.08397	11.9087	12
49	.01425	70.1533	.03172	31.5284	.04920	20.3253	.06671	14.9898	.08427	11.8673	11
50	.01455	68.7501	.03201	31.2416	.04949	20.2056	.06700	14.9244	.08456	11.8262	10
51	.01484	67.4019	.03230	30.9599	.04978	20.0872	.06730	14.8596	.08485	11.7853	9
52	.01513	66.1055	.03259	30.6833	.05007	19.9702	.06759	14.7954	.08514	11.7448	8
53	.01542	64.8580	.03288	30.4116	.05037	19.8546	.06788	14.7317	.08544	11.7045	7
54	.01571	63.6567	.03317	30.1446	.05066	19.7403	.06817	14.6685	.08573	11.6645	6
55	.01600	62.4992	.03346	29.8823	.05095	19.6273	.06847	14.6059	.08602	11.6248	5
56	.01629	61.3829	.03376	29.6245	.05124	19.5156	.06876	14.5438	.08632	11.5853	4
57	.01658	60.3058	.03405	29.3711	.05153	19.4051	.06905	14.4823	.08661	11.5461	3
58	.01687	59.2659	.03434	29.1220	.05182	19.2959	.06934	14.4212	.08690	11.5072	2
59	.01716	58.2612	.03463	28.8771	.05212	19.1879	.06963	14.3607	.08720	11.4685	1
60	.01746	57.2900	.03492	28.6363	.05241	19.0811	.06993	14.3007	.08749	11.4301	0
/	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	/
	89°		88°		87°		86°		85°		

NATURAL TANGENTS AND COTANGENTS

′	5°		6°		7°		8°		9°		′
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.08749	11.4301	.10510	9.51436	.12278	8.14435	.14054	7.11537	.15838	6.31375	60
1	.08778	11.3919	.10540	9.48781	.12308	8.12481	.14084	7.10038	.15868	6.30189	59
2	.08807	11.3540	.10569	9.46141	.12338	8.10536	.14113	7.08546	.15898	6.29007	58
3	.08837	11.3163	.10599	9.43515	.12367	8.08600	.14143	7.07059	.15928	6.27829	57
4	.08866	11.2789	.10628	9.40904	.12397	8.06674	.14173	7.05579	.15958	6.26655	56
5	.08895	11.2417	.10657	9.38307	.12426	8.04756	.14202	7.04105	.15988	6.25486	55
6	.08925	11.2048	.10687	9.35724	.12456	8.02848	.14232	7.02637	.16017	6.24321	54
7	.08954	11.1681	.10716	9.33155	.12485	8.00948	.14262	7.01174	.16047	6.23160	53
8	.08983	11.1316	.10746	9.30599	.12515	7.99058	.14291	6.99718	.16077	6.22003	52
9	.09013	11.0954	.10775	9.28058	.12544	7.97176	.14321	6.98268	.16107	6.20851	51
10	.09042	11.0594	.10805	9.25530	.12574	7.95302	.14351	6.96823	.16137	6.19703	50
11	.09071	11.0237	.10834	9.23016	.12603	7.93438	.14381	6.95385	.16167	6.18559	49
12	.09101	10.9882	.10863	9.20516	.12633	7.91582	.14410	6.93952	.16196	6.17419	48
13	.09130	10.9529	.10893	9.18028	.12662	7.89734	.14440	6.92525	.16226	6.16283	47
14	.09159	10.9178	.10922	9.15554	.12692	7.87895	.14470	6.91104	.16256	6.15151	46
15	.09189	10.8829	.10952	9.13093	.12722	7.86064	.14499	6.89688	.16286	6.14023	45
16	.09218	10.8483	.10981	9.10646	.12751	7.84242	.14529	6.88278	.16316	6.12899	44
17	.09247	10.8139	.11011	9.08211	.12781	7.82428	.14559	6.86874	.16346	6.11779	43
18	.09277	10.7797	.11040	9.05789	.12810	7.80622	.14588	6.85475	.16376	6.10664	42
19	.09306	10.7457	.11070	9.03379	.12840	7.78825	.14618	6.84082	.16405	6.09552	41
20	.09335	10.7119	.11099	9.00983	.12869	7.77035	.14648	6.82694	.16435	6.08444	40
21	.09365	10.6783	.11128	8.98598	.12899	7.75254	.14678	6.81312	.16465	6.07340	39
22	.09394	10.6450	.11158	8.96227	.12929	7.73480	.14707	6.79936	.16495	6.06240	38
23	.09423	10.6118	.11187	8.93867	.12958	7.71715	.14737	6.78564	.16525	6.05143	37
24	.09453	10.5789	.11217	8.91520	.12988	7.69957	.14767	6.77199	.16555	6.04051	36
25	.09482	10.5462	.11246	8.89185	.13017	7.68208	.14796	6.75838	.16585	6.02962	35
26	.09511	10.5136	.11276	8.86862	.13047	7.66466	.14826	6.74483	.16615	6.01878	34
27	.09541	10.4813	.11305	8.84551	.13076	7.64732	.14856	6.73133	.16645	6.00797	33
28	.09570	10.4491	.11335	8.82252	.13106	7.63005	.14886	6.71789	.16674	5.99720	32
29	.09600	10.4172	.11364	8.79964	.13136	7.61287	.14915	6.70450	.16704	5.98646	31
30	.09629	10.3854	.11394	8.77689	.13165	7.59575	.14945	6.69116	.16734	5.97576	30
31	.09658	10.3538	.11423	8.75425	.13195	7.57872	.14975	6.67787	.16764	5.96510	29
32	.09688	10.3224	.11452	8.73172	.13224	7.56176	.15005	6.66463	.16794	5.95448	28
33	.09717	10.2913	.11482	8.70931	.13254	7.54487	.15034	6.65144	.16824	5.94390	27
34	.09746	10.2602	.11511	8.68701	.13284	7.52806	.15064	6.63831	.16854	5.93335	26
35	.09776	10.2294	.11541	8.66482	.13313	7.51132	.15094	6.62523	.16884	5.92283	25
36	.09805	10.1988	.11570	8.64275	.13343	7.49465	.15124	6.61219	.16914	5.91236	24
37	.09834	10.1683	.11600	8.62078	.13372	7.47806	.15153	6.59921	.16944	5.90191	23
38	.09864	10.1381	.11629	8.59893	.13402	7.46154	.15183	6.58627	.16974	5.89151	22
39	.09893	10.1080	.11659	8.57718	.13432	7.44509	.15213	6.57339	.17004	5.88114	21
40	.09923	10.0780	.11688	8.55555	.13461	7.42871	.15243	6.56055	.17033	5.87080	20
41	.09952	10.0483	.11718	8.53402	.13491	7.41240	.15272	6.54777	.17063	5.86051	19
42	.09981	10.0187	.11747	8.51259	.13521	7.39616	.15302	6.53503	.17093	5.85024	18
43	.10011	9.98931	.11777	8.49128	.13550	7.37999	.15332	6.52234	.17123	5.84001	17
44	.10040	9.96007	.11806	8.47007	.13580	7.36389	.15362	6.50970	.17153	5.82982	16
45	.10069	9.93101	.11836	8.44896	.13609	7.34786	.15391	6.49710	.17183	5.81966	15
46	.10099	9.90211	.11865	8.42795	.13639	7.33190	.15421	6.48456	.17213	5.80953	14
47	.10128	9.87338	.11895	8.40705	.13669	7.31600	.15451	6.47206	.17243	5.79944	13
48	.10158	9.84482	.11924	8.38625	.13698	7.30018	.15481	6.45961	.17273	5.78938	12
49	.10187	9.81641	.11954	8.36555	.13728	7.28442	.15511	6.44720	.17303	5.77936	11
50	.10216	9.78817	.11983	8.34496	.13758	7.26873	.15540	6.43484	.17333	5.76937	10
51	.10246	9.76009	.12013	8.32446	.13787	7.25310	.15570	6.42253	.17363	5.75941	9
52	.10275	9.73217	.12042	8.30406	.13817	7.23754	.15600	6.41026	.17393	5.74949	8
53	.10305	9.70441	.12072	8.28376	.13846	7.22204	.15630	6.39804	.17423	5.73960	7
54	.10334	9.67680	.12101	8.26355	.13876	7.20661	.15660	6.38587	.17453	5.72974	6
55	.10363	9.64935	.12131	8.24345	.13906	7.19125	.15689	6.37374	.17483	5.71992	5
56	.10393	9.62205	.12160	8.22344	.13935	7.17594	.15719	6.36165	.17513	5.71013	4
57	.10422	9.59490	.12190	8.20352	.13965	7.16071	.15749	6.34961	.17543	5.70037	3
58	.10452	9.56791	.12219	8.18370	.13995	7.14553	.15779	6.33761	.17573	5.69064	2
59	.10481	9.54106	.12249	8.16398	.14024	7.13042	.15809	6.32566	.17603	5.68094	1
60	.10510	9.51436	.12278	8.14435	.14054	7.11537	.15838	6.31375	.17633	5.67128	0
′	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	′
	84°		83°		82°		81°		80°		

NATURAL TANGENTS AND COTANGENTS

/	10°		11°		12°		13°		14°		/
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.17633	5.67128	.19438	5.14455	.21256	4.70463	.23087	4.33148	.24933	4.01078	60
1	.17663	5.66165	.19468	5.13658	.21286	4.69791	.23117	4.32573	.24964	4.00582	59
2	.17693	5.65205	.19498	5.12862	.21316	4.69121	.23148	4.32001	.24995	4.00086	58
3	.17723	5.64248	.19529	5.12069	.21347	4.68452	.23179	4.31430	.25026	3.99592	57
4	.17753	5.63295	.19559	5.11279	.21377	4.67786	.23209	4.30860	.25056	3.99099	56
5	.17783	5.62344	.19589	5.10490	.21408	4.67121	.23240	4.30291	.25087	3.98607	55
6	.17813	5.61397	.19619	5.09704	.21438	4.66458	.23271	4.29724	.25118	3.98117	54
7	.17843	5.60452	.19649	5.08921	.21469	4.65797	.23301	4.29159	.25149	3.97627	53
8	.17873	5.59511	.19680	5.08139	.21499	4.65138	.23332	4.28595	.25180	3.97139	52
9	.17903	5.58573	.19710	5.07360	.21529	4.64480	.23363	4.28032	.25211	3.96651	51
10	.17933	5.57638	.19740	5.06584	.21560	4.63825	.23393	4.27471	.25242	3.96165	50
11	.17963	5.56706	.19770	5.05809	.21590	4.63171	.23424	4.26911	.25273	3.95680	49
12	.17993	5.55777	.19801	5.05037	.21621	4.62518	.23455	4.26352	.25304	3.95196	48
13	.18023	5.54851	.19831	5.04267	.21651	4.61868	.23485	4.25795	.25335	3.94713	47
14	.18053	5.53927	.19861	5.03499	.21682	4.61219	.23516	4.25239	.25366	3.94232	46
15	.18083	5.53007	.19891	5.02734	.21712	4.60572	.23547	4.24685	.25397	3.93751	45
16	.18113	5.52090	.19921	5.01971	.21743	4.59927	.23578	4.24132	.25428	3.93271	44
17	.18143	5.51176	.19952	5.01210	.21773	4.59283	.23608	4.23580	.25459	3.92793	43
18	.18173	5.50264	.19982	5.00451	.21804	4.58641	.23639	4.23030	.25490	3.92316	42
19	.18203	5.49356	.20012	4.99695	.21834	4.58001	.23670	4.22481	.25521	3.91839	41
20	.18233	5.48451	.20042	4.98940	.21864	4.57363	.23700	4.21933	.25552	3.91364	40
21	.18263	5.47548	.20073	4.98188	.21895	4.56726	.23731	4.21387	.25583	3.90890	39
22	.18293	5.46648	.20103	4.97438	.21925	4.56091	.23762	4.20842	.25614	3.90417	38
23	.18323	5.45751	.20133	4.96690	.21956	4.55458	.23793	4.20298	.25645	3.89945	37
24	.18353	5.44857	.20164	4.95945	.21986	4.54826	.23823	4.19756	.25676	3.89474	36
25	.18384	5.43966	.20194	4.95201	.22017	4.54196	.23854	4.19215	.25707	3.89004	35
26	.18414	5.43077	.20224	4.94460	.22047	4.53568	.23885	4.18675	.25738	3.88536	34
27	.18444	5.42192	.20254	4.93721	.22078	4.52941	.23916	4.18137	.25769	3.88068	33
28	.18474	5.41309	.20285	4.92984	.22108	4.52316	.23946	4.17600	.25800	3.87601	32
29	.18504	5.40429	.20315	4.92249	.22139	4.51693	.23977	4.17064	.25831	3.87136	31
30	.18534	5.39552	.20345	4.91516	.22169	4.51071	.24008	4.16530	.25862	3.86671	30
31	.18564	5.38677	.20376	4.90785	.22200	4.50451	.24039	4.15997	.25893	3.86208	29
32	.18594	5.37805	.20406	4.90056	.22231	4.49832	.24069	4.15465	.25924	3.85745	28
33	.18624	5.36936	.20436	4.89330	.22261	4.49215	.24100	4.14934	.25955	3.85284	27
34	.18654	5.36070	.20466	4.88605	.22292	4.48600	.24131	4.14405	.25986	3.84824	26
35	.18684	5.35206	.20497	4.87882	.22322	4.47986	.24162	4.13877	.26017	3.84364	25
36	.18714	5.34345	.20527	4.87162	.22353	4.47374	.24193	4.13350	.26048	3.83906	24
37	.18745	5.33487	.20557	4.86444	.22383	4.46764	.24223	4.12825	.26079	3.83449	23
38	.18775	5.32631	.20588	4.85727	.22414	4.46155	.24254	4.12301	.26110	3.82992	22
39	.18805	5.31778	.20618	4.85013	.22444	4.45548	.24285	4.11778	.26141	3.82537	21
40	.18835	5.30928	.20648	4.84300	.22475	4.44942	.24316	4.11256	.26172	3.82083	20
41	.18865	5.30080	.20679	4.83590	.22505	4.44338	.24347	4.10736	.26203	3.81630	19
42	.18895	5.29235	.20709	4.82882	.22536	4.43735	.24377	4.10216	.26235	3.81177	18
43	.18925	5.28393	.20739	4.82175	.22567	4.43134	.24408	4.09699	.26266	3.80726	17
44	.18955	5.27553	.20770	4.81471	.22597	4.42534	.24439	4.09182	.26297	3.80276	16
45	.18986	5.26715	.20800	4.80769	.22628	4.41936	.24470	4.08666	.26328	3.79827	15
46	.19016	5.25880	.20830	4.80068	.22658	4.41340	.24501	4.08152	.26359	3.79378	14
47	.19046	5.25048	.20861	4.79370	.22689	4.40745	.24532	4.07639	.26390	3.78931	13
48	.19076	5.24218	.20891	4.78673	.22719	4.40152	.24562	4.07127	.26421	3.78485	12
49	.19106	5.23391	.20921	4.77978	.22750	4.39560	.24593	4.06616	.26452	3.78040	11
50	.19136	5.22566	.20952	4.77286	.22781	4.38969	.24624	4.06107	.26483	3.77595	10
51	.19166	5.21744	.20982	4.76595	.22811	4.38381	.24655	4.05599	.26515	3.77152	9
52	.19197	5.20925	.21013	4.75906	.22842	4.37793	.24686	4.05092	.26546	3.76709	8
53	.19227	5.20107	.21043	4.75219	.22872	4.37207	.24717	4.04586	.26577	3.76268	7
54	.19257	5.19293	.21073	4.74534	.22903	4.36623	.24747	4.04081	.26608	3.75828	6
55	.19287	5.18480	.21104	4.73851	.22934	4.36040	.24778	4.03578	.26639	3.75388	5
56	.19317	5.17671	.21134	4.73170	.22964	4.35459	.24809	4.03076	.26670	3.74950	4
57	.19347	5.16863	.21164	4.72490	.22995	4.34879	.24840	4.02574	.26701	3.74512	3
58	.19378	5.16058	.21195	4.71813	.23026	4.34300	.24871	4.02074	.26733	3.74075	2
59	.19408	5.15256	.21225	4.71137	.23056	4.33723	.24902	4.01576	.26764	3.73640	1
60	.19438	5.14455	.21256	4.70463	.23087	4.33148	.24933	4.01078	.26795	3.73205	0
/	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	/
	79°		78°		77°		76°		75°		

NATURAL TANGENTS AND COTANGENTS

′	15°		16°		17°		18°		19°		′
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.26795	3.73205	.28675	3.48741	.30573	3.27085	.32492	3.07768	.34433	2.90421	60
1	.26826	3.72771	.28706	3.48359	.30605	3.26745	.32524	3.07464	.34465	2.90147	59
2	.26857	3.72338	.28738	3.47977	.30637	3.26406	.32556	3.07160	.34498	2.89873	58
3	.26888	3.71907	.28769	3.47596	.30669	3.26067	.32588	3.06857	.34530	2.89600	57
4	.26920	3.71476	.28800	3.47216	.30700	3.25729	.32621	3.06554	.34563	2.89327	56
5	.26951	3.71046	.28832	3.46837	.30732	3.25392	.32653	3.06252	.34596	2.89055	55
6	.26982	3.70616	.28864	3.46458	.30764	3.25055	.32685	3.05950	.34628	2.88783	54
7	.27013	3.70188	.28895	3.46080	.30796	3.24719	.32717	3.05649	.34661	2.88511	53
8	.27044	3.69761	.28927	3.45703	.30828	3.24383	.32749	3.05349	.34693	2.88240	52
9	.27076	3.69335	.28958	3.45327	.30860	3.24049	.32782	3.05049	.34726	2.87970	51
10	.27107	3.68909	.28990	3.44951	.30891	3.23714	.32814	3.04749	.34758	2.87700	50
11	.27138	3.68485	.29021	3.44576	.30923	3.23381	.32846	3.04450	.34791	2.87430	49
12	.27169	3.68061	.29053	3.44202	.30955	3.23048	.32878	3.04152	.34824	2.87161	48
13	.27201	3.67638	.29084	3.43829	.30987	3.22715	.32911	3.03854	.34856	2.86892	47
14	.27232	3.67217	.29116	3.43456	.31019	3.22384	.32943	3.03556	.34889	2.86624	46
15	.27263	3.66796	.29147	3.43084	.31051	3.22053	.32975	3.03260	.34922	2.86356	45
16	.27294	3.66376	.29179	3.42713	.31083	3.21722	.33007	3.02963	.34954	2.86089	44
17	.27326	3.65957	.29210	3.42343	.31115	3.21392	.33040	3.02667	.34987	2.85822	43
18	.27357	3.65538	.29242	3.41973	.31147	3.21063	.33072	3.02372	.35020	2.85555	42
19	.27388	3.65121	.29274	3.41604	.31178	3.20734	.33104	3.02077	.35052	2.85289	41
20	.27419	3.64705	.29305	3.41236	.31210	3.20406	.33136	3.01783	.35085	2.85023	40
21	.27451	3.64289	.29337	3.40869	.31242	3.20079	.33169	3.01489	.35118	2.84758	39
22	.27482	3.63874	.29368	3.40502	.31274	3.19752	.33201	3.01196	.35150	2.84494	38
23	.27513	3.63461	.29400	3.40136	.31306	3.19426	.33233	3.00903	.35183	2.84229	37
24	.27545	3.63048	.29432	3.39771	.31338	3.19100	.33266	3.00611	.35216	2.83965	36
25	.27576	3.62636	.29463	3.39406	.31370	3.18775	.33298	3.00319	.35248	2.83702	35
26	.27607	3.62224	.29495	3.39042	.31402	3.18451	.33330	3.00028	.35281	2.83439	34
27	.27638	3.61814	.29526	3.38679	.31434	3.18127	.33363	2.99738	.35314	2.83176	33
28	.27670	3.61405	.29558	3.38317	.31466	3.17804	.33395	2.99447	.35346	2.82914	32
29	.27701	3.60996	.29590	3.37955	.31498	3.17481	.33427	2.99158	.35379	2.82653	31
30	.27732	3.60588	.29621	3.37594	.31530	3.17159	.33460	2.98868	.35412	2.82391	30
31	.27764	3.60181	.29653	3.37234	.31562	3.16838	.33492	2.98580	.35445	2.82130	29
32	.27795	3.59775	.29685	3.36875	.31594	3.16517	.33524	2.98292	.35477	2.81870	28
33	.27826	3.59370	.29716	3.36516	.31626	3.16197	.33557	2.98004	.35510	2.81610	27
34	.27858	3.58966	.29748	3.36158	.31658	3.15877	.33589	2.97717	.35543	2.81350	26
35	.27889	3.58562	.29780	3.35800	.31690	3.15558	.33621	2.97430	.35576	2.81091	25
36	.27921	3.58160	.29811	3.35443	.31722	3.15240	.33654	2.97144	.35608	2.80833	24
37	.27952	3.57758	.29843	3.35087	.31754	3.14922	.33686	2.96858	.35641	2.80574	23
38	.27983	3.57357	.29875	3.34732	.31786	3.14605	.33718	2.96573	.35674	2.80316	22
39	.28015	3.56957	.29906	3.34377	.31818	3.14288	.33751	2.96288	.35707	2.80059	21
40	.28046	3.56557	.29938	3.34023	.31850	3.13972	.33783	2.96004	.35740	2.79802	20
41	.28077	3.56159	.29970	3.33670	.31882	3.13656	.33816	2.95721	.35772	2.79545	19
42	.28109	3.55761	.30001	3.33317	.31914	3.13341	.33848	2.95437	.35805	2.79289	18
43	.28140	3.55364	.30033	3.32965	.31946	3.13027	.33881	2.95155	.35838	2.79033	17
44	.28172	3.54968	.30065	3.32614	.31978	3.12713	.33913	2.94872	.35871	2.78778	16
45	.28203	3.54573	.30097	3.32264	.32010	3.12400	.33945	2.94591	.35904	2.78523	15
46	.28234	3.54179	.30128	3.31914	.32042	3.12087	.33978	2.94309	.35937	2.78269	14
47	.28266	3.53785	.30160	3.31565	.32074	3.11775	.34010	2.94028	.35969	2.78014	13
48	.28297	3.53393	.30192	3.31216	.32106	3.11464	.34043	2.93748	.36002	2.77761	12
49	.28329	3.53001	.30224	3.30868	.32139	3.11153	.34075	2.93468	.36035	2.77507	11
50	.28360	3.52609	.30255	3.30521	.32171	3.10842	.34108	2.93189	.36068	2.77254	10
51	.28391	3.52219	.30287	3.30174	.32203	3.10532	.34140	2.92910	.36101	2.77002	9
52	.28423	3.51829	.30319	3.29829	.32235	3.10223	.34173	2.92632	.36134	2.76750	8
53	.28454	3.51441	.30351	3.29483	.32267	3.09914	.34205	2.92354	.36167	2.76498	7
54	.28486	3.51053	.30382	3.29139	.32299	3.09606	.34238	2.92076	.36199	2.76247	6
55	.28517	3.50666	.30414	3.28795	.32331	3.09298	.34270	2.91799	.36232	2.75996	5
56	.28549	3.50279	.30446	3.28452	.32363	3.08991	.34303	2.91523	.36265	2.75746	4
57	.28580	3.49894	.30478	3.28109	.32396	3.08685	.34335	2.91246	.36298	2.75496	3
58	.28612	3.49509	.30509	3.27767	.32428	3.08379	.34368	2.90971	.36331	2.75246	2
59	.28643	3.49125	.30541	3.27426	.32460	3.08073	.34400	2.90696	.36364	2.74997	1
60	.28675	3.48741	.30573	3.27085	.32492	3.07768	.34433	2.90421	.36397	2.74748	0
′	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	′
	74°		73°		72°		71°		70°		

NATURAL TANGENTS AND COTANGENTS

′	20°		21°		22°		23°		24°		′
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.36397	2.74748	.38386	2.60509	.40403	2.47509	.42447	2.35585	.44523	2.24604	60
1	.36430	2.74499	.38420	2.60283	.40436	2.47302	.42482	2.35395	.44558	2.24428	59
2	.36463	2.74251	.38453	2.60057	.40470	2.47095	.42516	2.35205	.44593	2.24252	58
3	.36496	2.74004	.38487	2.59831	.40504	2.46888	.42551	2.35015	.44627	2.24077	57
4	.36529	2.73756	.38520	2.59606	.40538	2.46682	.42585	2.34825	.44662	2.23902	56
5	.36562	2.73509	.38553	2.59381	.40572	2.46476	.42619	2.34636	.44697	2.23727	55
6	.36595	2.73263	.38587	2.59156	.40606	2.46270	.42654	2.34447	.44732	2.23553	54
7	.36628	2.73017	.38620	2.58932	.40640	2.46065	.42688	2.34258	.44767	2.23378	53
8	.36661	2.72771	.38654	2.58708	.40674	2.45860	.42722	2.34069	.44802	2.23204	52
9	.36694	2.72526	.38687	2.58484	.40707	2.45655	.42757	2.33881	.44837	2.23030	51
10	.36727	2.72281	.38721	2.58261	.40741	2.45451	.42791	2.33693	.44872	2.22857	50
11	.36760	2.72036	.38754	2.58038	.40775	2.45246	.42826	2.33505	.44907	2.22683	49
12	.36793	2.71792	.38787	2.57815	.40809	2.45043	.42860	2.33317	.44942	2.22510	48
13	.36826	2.71548	.38821	2.57593	.40843	2.44839	.42894	2.33130	.44977	2.22337	47
14	.36859	2.71305	.38854	2.57371	.40877	2.44636	.42929	2.32943	.45012	2.22164	46
15	.36892	2.71062	.38888	2.57150	.40911	2.44433	.42963	2.32756	.45047	2.21992	45
16	.36925	2.70819	.38921	2.56928	.40945	2.44230	.42998	2.32570	.45082	2.21819	44
17	.36958	2.70577	.38955	2.56707	.40979	2.44027	.43032	2.32383	.45117	2.21647	43
18	.36991	2.70335	.38988	2.56487	.41013	2.43825	.43067	2.32197	.45152	2.21475	42
19	.37024	2.70094	.39022	2.56266	.41047	2.43623	.43101	2.32012	.45187	2.21304	41
20	.37057	2.69853	.39055	2.56046	.41081	2.43422	.43136	2.31826	.45222	2.21132	40
21	.37090	2.69612	.39089	2.55827	.41115	2.43220	.43170	2.31641	.45257	2.20961	39
22	.37123	2.69371	.39122	2.55608	.41149	2.43019	.43205	2.31456	.45292	2.20790	38
23	.37157	2.69131	.39156	2.55389	.41183	2.42819	.43230	2.31271	.45327	2.20619	37
24	.37190	2.68892	.39190	2.55170	.41217	2.42618	.43274	2.31086	.45362	2.20449	36
25	.37223	2.68653	.39223	2.54952	.41251	2.42418	.43308	2.30902	.45397	2.20278	35
26	.37256	2.68414	.39257	2.54734	.41285	2.42218	.43343	2.30718	.45432	2.20108	34
27	.37289	2.68175	.39290	2.54516	.41319	2.42019	.43378	2.30534	.45467	2.19938	33
28	.37322	2.67937	.39324	2.54299	.41353	2.41819	.43412	2.30351	.45502	2.19769	32
29	.37355	2.67700	.39357	2.54082	.41387	2.41620	.43447	2.30167	.45538	2.19599	31
30	.37388	2.67462	.39391	2.53865	.41421	2.41421	.43481	2.29984	.45573	2.19430	30
31	.37422	2.67225	.39425	2.53648	.41455	2.41223	.43516	2.29801	.45608	2.19261	29
32	.37455	2.66989	.39458	2.53432	.41490	2.41025	.43550	2.29619	.45643	2.19092	28
33	.37488	2.66752	.39492	2.53217	.41524	2.40827	.43585	2.29437	.45678	2.18923	27
34	.37521	2.66516	.39526	2.53001	.41558	2.40629	.43620	2.29254	.45713	2.18755	26
35	.37554	2.66281	.39559	2.52786	.41592	2.40432	.43654	2.29073	.45748	2.18587	25
36	.37588	2.66046	.39593	2.52571	.41626	2.40235	.43689	2.28891	.45784	2.18419	24
37	.37621	2.65811	.39626	2.52357	.41660	2.40038	.43724	2.28710	.45819	2.18251	23
38	.37654	2.65576	.39660	2.52142	.41694	2.39841	.43758	2.28528	.45854	2.18084	22
39	.37687	2.65342	.39694	2.51929	.41728	2.39645	.43793	2.28348	.45889	2.17916	21
40	.37720	2.65109	.39727	2.51715	.41763	2.39449	.43828	2.28167	.45924	2.17749	20
41	.37754	2.64875	.39761	2.51502	.41797	2.39253	.43862	2.27987	.45960	2.17582	19
42	.37787	2.64642	.39795	2.51289	.41831	2.39058	.43897	2.27806	.45995	2.17416	18
43	.37820	2.64410	.39829	2.51076	.41865	2.38863	.43932	2.27626	.46030	2.17249	17
44	.37853	2.64177	.39862	2.50864	.41899	2.38668	.43966	2.27447	.46065	2.17083	16
45	.37887	2.63945	.39896	2.50652	.41933	2.38473	.44001	2.27267	.46101	2.16917	15
46	.37920	2.63714	.39930	2.50440	.41968	2.38279	.44036	2.27088	.46136	2.16751	14
47	.37953	2.63483	.39963	2.50229	.42002	2.38084	.44071	2.26909	.46171	2.16585	13
48	.37986	2.63252	.39997	2.50018	.42036	2.37891	.44105	2.26730	.46206	2.16420	12
49	.38020	2.63021	.40031	2.49807	.42070	2.37697	.44140	2.26552	.46242	2.16255	11
50	.38053	2.62791	.40065	2.49597	.42105	2.37504	.44175	2.26374	.46277	2.16090	10
51	.38086	2.62561	.40098	2.49386	.42139	2.37311	.44210	2.26196	.46312	2.15925	9
52	.38120	2.62332	.40132	2.49177	.42173	2.37118	.44244	2.26018	.46348	2.15760	8
53	.38153	2.62103	.40166	2.48967	.42207	2.36925	.44279	2.25840	.46383	2.15596	7
54	.38186	2.61874	.40200	2.48758	.42242	2.36733	.44314	2.25663	.46418	2.15432	6
55	.38220	2.61646	.40234	2.48549	.42276	2.36541	.44349	2.25486	.46454	2.15268	5
56	.38253	2.61418	.40267	2.48340	.42310	2.36349	.44384	2.25309	.46489	2.15104	4
57	.38286	2.61190	.40301	2.48132	.42345	2.36158	.44418	2.25132	.46525	2.14940	3
58	.38320	2.60963	.40335	2.47924	.42379	2.35967	.44453	2.24956	.46560	2.14777	2
59	.38353	2.60736	.40369	2.47716	.42413	2.35776	.44488	2.24780	.46595	2.14614	1
60	.38386	2.60509	.40403	2.47509	.42447	2.35585	.44523	2.24604	.46631	2.14451	0
′	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	′
	69°		68°		67°		66°		65°		

NATURAL TANGENTS AND COTANGENTS

′	25°		26°		27°		28°		29°		′
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.46631	2.14451	.48773	2.05030	.50953	1.96261	.53171	1.88073	.55431	1.80405	60
1	.46666	2.14288	.48809	2.04879	.50989	1.96120	.53208	1.87941	.55469	1.80281	59
2	.46702	2.14125	.48845	2.04728	.51026	1.95979	.53246	1.87809	.55507	1.80158	58
3	.46737	2.13963	.48881	2.04577	.51063	1.95838	.53283	1.87677	.55545	1.80034	57
4	.46772	2.13801	.48917	2.04426	.51099	1.95698	.53320	1.87546	.55583	1.79911	56
5	.46808	2.13639	.48953	2.04276	.51136	1.95557	.53358	1.87415	.55621	1.79788	55
6	.46843	2.13477	.48989	2.04125	.51173	1.95417	.53395	1.87283	.55659	1.79665	54
7	.46879	2.13316	.49026	2.03975	.51209	1.95277	.53432	1.87152	.55697	1.79542	53
8	.46914	2.13154	.49062	2.03825	.51246	1.95137	.53470	1.87021	.55736	1.79419	52
9	.46950	2.12993	.49098	2.03675	.51283	1.94997	.53507	1.86891	.55774	1.79296	51
10	.46985	2.12832	.49134	2.03526	.51319	1.94858	.53545	1.86760	.55812	1.79174	50
11	.47021	2.12671	.49170	2.03376	.51356	1.94718	.53582	1.86630	.55850	1.79051	49
12	.47056	2.12511	.49206	2.03227	.51393	1.94579	.53620	1.86499	.55888	1.78929	48
13	.47092	2.12350	.49242	2.03078	.51430	1.94440	.53657	1.86369	.55926	1.78807	47
14	.47128	2.12190	.49278	2.02929	.51467	1.94301	.53694	1.86239	.55964	1.78685	46
15	.47163	2.12030	.49315	2.02780	.51503	1.94162	.53732	1.86109	.56003	1.78563	45
16	.47199	2.11871	.49351	2.02631	.51540	1.94023	.53769	1.85979	.56041	1.78441	44
17	.47234	2.11711	.49387	2.02483	.51577	1.93885	.53807	1.85850	.56079	1.78319	43
18	.47270	2.11552	.49423	2.02335	.51614	1.93746	.53844	1.85720	.56117	1.78198	42
19	.47305	2.11392	.49459	2.02187	.51651	1.93608	.53882	1.85591	.56156	1.78077	41
20	.47341	2.11233	.49495	2.02039	.51688	1.93470	.53920	1.85462	.56194	1.77955	40
21	.47377	2.11075	.49532	2.01891	.51724	1.93332	.53957	1.85333	.56232	1.77834	39
22	.47412	2.10916	.49568	2.01743	.51761	1.93195	.53995	1.85204	.56270	1.77713	38
23	.47448	2.10758	.49604	2.01596	.51798	1.93057	.54032	1.85075	.56309	1.77592	37
24	.47483	2.10600	.49640	2.01449	.51835	1.92920	.54070	1.84946	.56347	1.77471	36
25	.47519	2.10442	.49677	2.01302	.51872	1.92782	.54107	1.84818	.56385	1.77351	35
26	.47555	2.10284	.49713	2.01155	.51909	1.92645	.54145	1.84689	.56424	1.77230	34
27	.47590	2.10126	.49749	2.01008	.51946	1.92508	.54183	1.84561	.56462	1.77110	33
28	.47626	2.09969	.49786	2.00862	.51983	1.92371	.54220	1.84433	.56501	1.76990	32
29	.47662	2.09811	.49822	2.00715	.52020	1.92235	.54258	1.84305	.56539	1.76869	31
30	.47698	2.09654	.49858	2.00569	.52057	1.92098	.54296	1.84177	.56577	1.76749	30
31	.47733	2.09498	.49894	2.00423	.52094	1.91962	.54333	1.84049	.56616	1.76629	29
32	.47769	2.09341	.49931	2.00277	.52131	1.91826	.54371	1.83922	.56654	1.76510	28
33	.47805	2.09184	.49967	2.00131	.52168	1.91690	.54409	1.83794	.56693	1.76390	27
34	.47840	2.09028	.50004	1.99986	.52205	1.91554	.54446	1.83667	.56731	1.76271	26
35	.47876	2.08872	.50040	1.99841	.52242	1.91418	.54484	1.83540	.56769	1.76151	25
36	.47912	2.08716	.50076	1.99695	.52279	1.91282	.54522	1.83413	.56808	1.76032	24
37	.47948	2.08560	.50113	1.99550	.52316	1.91147	.54560	1.83286	.56846	1.75913	23
38	.47984	2.08405	.50149	1.99406	.52353	1.91012	.54597	1.83159	.56885	1.75794	22
39	.48019	2.08250	.50185	1.99261	.52390	1.90876	.54635	1.83033	.56923	1.75675	21
40	.48055	2.08094	.50222	1.99116	.52427	1.90741	.54673	1.82906	.56962	1.75556	20
41	.48091	2.07939	.50258	1.98972	.52464	1.90607	.54711	1.82780	.57000	1.75437	19
42	.48127	2.07785	.50295	1.98828	.52501	1.90472	.54748	1.82654	.57039	1.75319	18
43	.48163	2.07630	.50331	1.98684	.52538	1.90337	.54786	1.82528	.57078	1.75200	17
44	.48198	2.07476	.50368	1.98540	.52575	1.90203	.54824	1.82402	.57116	1.75082	16
45	.48234	2.07321	.50404	1.98396	.52613	1.90069	.54862	1.82276	.57155	1.74964	15
46	.48270	2.07167	.50441	1.98253	.52650	1.89935	.54900	1.82150	.57193	1.74846	14
47	.48306	2.07014	.50477	1.98110	.52687	1.89801	.54938	1.82025	.57232	1.74728	13
48	.48342	2.06860	.50514	1.97966	.52724	1.89667	.54975	1.81899	.57271	1.74610	12
49	.48378	2.06706	.50550	1.97823	.52761	1.89533	.55013	1.81774	.57309	1.74492	11
50	.48414	2.06553	.50587	1.97681	.52798	1.89400	.55051	1.81649	.57348	1.74375	10
51	.48450	2.06400	.50623	1.97538	.52836	1.89266	.55089	1.81524	.57386	1.74257	9
52	.48486	2.06247	.50660	1.97395	.52873	1.89133	.55127	1.81399	.57425	1.74140	8
53	.48521	2.06094	.50696	1.97253	.52910	1.89000	.55165	1.81274	.57464	1.74022	7
54	.48557	2.05942	.50733	1.97111	.52947	1.88867	.55203	1.81150	.57503	1.73905	6
55	.48593	2.05790	.50769	1.96969	.52985	1.88734	.55241	1.81025	.57541	1.73788	5
56	.48629	2.05637	.50806	1.96827	.53022	1.88602	.55279	1.80901	.57580	1.73671	4
57	.48665	2.05485	.50843	1.96685	.53059	1.88469	.55317	1.80777	.57619	1.73555	3
58	.48701	2.05333	.50879	1.96544	.53096	1.88337	.55355	1.80653	.57657	1.73438	2
59	.48737	2.05182	.50916	1.96402	.53134	1.88205	.55393	1.80529	.57696	1.73321	1
60	.48773	2.05030	.50953	1.96261	.53171	1.88073	.55431	1.80405	.57735	1.73205	0
′	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	′
	64°		63°		62°		61°		60°		

NATURAL TANGENTS AND COTANGENTS

/	30°		31°		32°		33°		34°		/
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.57735	1.73205	.60086	1.66428	.62487	1.60033	.64941	1.53986	.67451	1.48256	60
1	.57774	1.73089	.60126	1.66318	.62527	1.59930	.64982	1.53888	.67493	1.48163	59
2	.57813	1.72973	.60165	1.66209	.62568	1.59826	.65024	1.53791	.67536	1.48070	58
3	.57851	1.72857	.60205	1.66099	.62608	1.59723	.65065	1.53693	.67578	1.47977	57
4	.57890	1.72741	.60245	1.65990	.62649	1.59620	.65106	1.53595	.67620	1.47885	56
5	.57929	1.72625	.60284	1.65881	.62689	1.59517	.65148	1.53497	.67663	1.47792	55
6	.57968	1.72509	.60324	1.65772	.62730	1.59414	.65189	1.53400	.67705	1.47699	54
7	.58007	1.72393	.60364	1.65663	.62770	1.59311	.65231	1.53302	.67748	1.47607	53
8	.58046	1.72278	.60403	1.65554	.62811	1.59208	.65272	1.53205	.67790	1.47514	52
9	.58085	1.72163	.60443	1.65445	.62852	1.59105	.65314	1.53107	.67832	1.47422	51
10	.58124	1.72047	.60483	1.65337	.62892	1.59002	.65355	1.53010	.67875	1.47330	50
11	.58162	1.71932	.60522	1.65228	.62933	1.58900	.65397	1.52913	.67917	1.47238	49
12	.58201	1.71817	.60562	1.65120	.62973	1.58797	.65438	1.52816	.67960	1.47146	48
13	.58240	1.71702	.60602	1.65011	.63014	1.58695	.65480	1.52719	.68002	1.47053	47
14	.58279	1.71588	.60642	1.64903	.63055	1.58593	.65521	1.52622	.68045	1.46962	46
15	.58318	1.71473	.60681	1.64795	.63095	1.58490	.65563	1.52525	.68088	1.46870	45
16	.58357	1.71358	.60721	1.64687	.63136	1.58388	.65604	1.52429	.68130	1.46778	44
17	.58396	1.71244	.60761	1.64579	.63177	1.58286	.65646	1.52332	.68173	1.46686	43
18	.58435	1.71129	.60801	1.64471	.63217	1.58184	.65688	1.52235	.68215	1.46595	42
19	.58474	1.71015	.60841	1.64363	.63258	1.58083	.65729	1.52139	.68258	1.46503	41
20	.58513	1.70901	.60881	1.64256	.63299	1.57981	.65771	1.52043	.68301	1.46411	40
21	.58552	1.70787	.60921	1.64148	.63340	1.57879	.65813	1.51946	.68343	1.46320	39
22	.58591	1.70673	.60960	1.64041	.63380	1.57778	.65854	1.51850	.68386	1.46229	38
23	.58631	1.70560	.61000	1.63934	.63421	1.57676	.65896	1.51754	.68429	1.46137	37
24	.58670	1.70446	.61040	1.63826	.63462	1.57575	.65938	1.51658	.68471	1.46046	36
25	.58709	1.70332	.61080	1.63719	.63503	1.57474	.65980	1.51562	.68514	1.45955	35
26	.58748	1.70219	.61120	1.63612	.63544	1.57372	.66021	1.51466	.68557	1.45864	34
27	.58787	1.70106	.61160	1.63505	.63584	1.57271	.66063	1.51370	.68600	1.45773	33
28	.58826	1.69992	.61200	1.63398	.63625	1.57170	.66105	1.51275	.68642	1.45682	32
29	.58865	1.69879	.61240	1.63292	.63666	1.57069	.66147	1.51179	.68685	1.45592	31
30	.58905	1.69766	.61280	1.63185	.63707	1.56969	.66189	1.51084	.68728	1.45501	30
31	.58944	1.69653	.61320	1.63079	.63748	1.56868	.66230	1.50988	.68771	1.45410	29
32	.58983	1.69541	.61360	1.62972	.63789	1.56767	.66272	1.50893	.68814	1.45320	28
33	.59022	1.69428	.61400	1.62866	.63830	1.56667	.66314	1.50797	.68857	1.45229	27
34	.59061	1.69316	.61440	1.62760	.63871	1.56566	.66356	1.50702	.68900	1.45139	26
35	.59101	1.69203	.61480	1.62654	.63912	1.56466	.66398	1.50607	.68942	1.45049	25
36	.59149	1.69091	.61520	1.62548	.63953	1.56366	.66440	1.50512	.68985	1.44958	24
37	.59179	1.68979	.61561	1.62442	.63994	1.56265	.66482	1.50417	.69028	1.44868	23
38	.59218	1.68866	.61601	1.62336	.64035	1.56165	.66524	1.50322	.69071	1.44778	22
39	.59258	1.68754	.61641	1.62230	.64076	1.56065	.66566	1.50228	.69114	1.44688	21
40	.59297	1.68643	.61681	1.62125	.64117	1.55966	.66608	1.50133	.69157	1.44598	20
41	.59336	1.68531	.61721	1.62019	.64158	1.55866	.66650	1.50038	.69200	1.44508	19
42	.59376	1.68419	.61761	1.61914	.64199	1.55766	.66692	1.49944	.69243	1.44418	18
43	.59415	1.68308	.61801	1.61808	.64240	1.55666	.66734	1.49849	.69286	1.44329	17
44	.59454	1.68196	.61842	1.61703	.64281	1.55567	.66776	1.49755	.69329	1.44239	16
45	.59494	1.68085	.61882	1.61598	.64322	1.55467	.66818	1.49661	.69372	1.44149	15
46	.59533	1.67974	.61922	1.61493	.64363	1.55368	.66860	1.49566	.69416	1.44060	14
47	.59573	1.67863	.61962	1.61388	.64404	1.55269	.66902	1.49472	.69459	1.43970	13
48	.59612	1.67752	.62003	1.61283	.64446	1.55170	.66944	1.49378	.69502	1.43881	12
49	.59651	1.67641	.62043	1.61179	.64487	1.55071	.66986	1.49284	.69545	1.43792	11
50	.59691	1.67530	.62083	1.61074	.64528	1.54972	.67028	1.49190	.69588	1.43703	10
51	.59730	1.67419	.62124	1.60970	.64569	1.54873	.67071	1.49097	.69631	1.43614	9
52	.59770	1.67309	.62164	1.60865	.64610	1.54774	.67113	1.49003	.69675	1.43525	8
53	.59809	1.67198	.62204	1.60761	.64652	1.54675	.67155	1.48909	.69718	1.43436	7
54	.59849	1.67088	.62245	1.60657	.64693	1.54576	.67197	1.48816	.69761	1.43347	6
55	.59888	1.66978	.62285	1.60553	.64734	1.54478	.67239	1.48722	.69804	1.43258	5
56	.59928	1.66867	.62325	1.60449	.64775	1.54379	.67282	1.48629	.69847	1.43169	4
57	.59967	1.66757	.62366	1.60345	.64817	1.54281	.67324	1.48536	.69891	1.43080	3
58	.60007	1.66647	.62406	1.60241	.64858	1.54183	.67366	1.48442	.69934	1.42992	2
59	.60046	1.66538	.62446	1.60137	.64899	1.54085	.67409	1.48349	.69977	1.42903	1
60	.60086	1.66428	.62487	1.60033	.64941	1.53986	.67451	1.48256	.70021	1.42815	0
/	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	/
	59°		58°		57°		56°		55°		

NATURAL TANGENTS AND COTANGENTS

′	35°		36°		37°		38°		39°		′
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.70021	1.42815	.72654	1.37638	.75355	1.32704	.78129	1.27994	.80978	1.23490	60
1	.70064	1.42726	.72699	1.37554	.75401	1.32624	.78175	1.27917	.81027	1.23416	59
2	.70107	1.42638	.72743	1.37470	.75447	1.32544	.78222	1.27841	.81075	1.23343	58
3	.70151	1.42550	.72788	1.37386	.75492	1.32464	.78269	1.27764	.81123	1.23270	57
4	.70194	1.42462	.72832	1.37302	.75538	1.32384	.78316	1.27688	.81171	1.23196	56
5	.70238	1.42374	.72877	1.37218	.75584	1.32304	.78363	1.27611	.81220	1.23123	55
6	.70281	1.42286	.72921	1.37134	.75629	1.32224	.78410	1.27535	.81268	1.23050	54
7	.70325	1.42198	.72966	1.37050	.75675	1.32144	.78457	1.27458	.81316	1.22977	53
8	.70368	1.42110	.73010	1.36967	.75721	1.32064	.78504	1.27382	.81364	1.22904	52
9	.70412	1.42022	.73055	1.36883	.75767	1.31984	.78551	1.27306	.81413	1.22831	51
10	.70455	1.41934	.73100	1.36800	.75812	1.31904	.78598	1.27230	.81461	1.22758	50
11	.70499	1.41847	.73144	1.36716	.75858	1.31825	.78645	1.27153	.81510	1.22685	49
12	.70542	1.41759	.73189	1.36633	.75904	1.31745	.78692	1.27077	.81558	1.22612	48
13	.70586	1.41672	.73234	1.36549	.75950	1.31666	.78739	1.27001	.81606	1.22539	47
14	.70629	1.41584	.73278	1.36466	.75996	1.31586	.78786	1.26925	.81655	1.22467	46
15	.70673	1.41497	.73323	1.36383	.76042	1.31507	.78834	1.26849	.81703	1.22394	45
16	.70717	1.41409	.73368	1.36300	.76088	1.31427	.78881	1.26774	.81752	1.22321	44
17	.70760	1.41322	.73413	1.36217	.76134	1.31348	.78928	1.26698	.81800	1.22249	43
18	.70804	1.41235	.73457	1.36134	.76180	1.31269	.78975	1.26622	.81849	1.22176	42
19	.70848	1.41148	.73502	1.36051	.76226	1.31190	.79022	1.26546	.81898	1.22104	41
20	.70891	1.41061	.73547	1.35968	.76272	1.31110	.79070	1.26471	.81946	1.22031	40
21	.70935	1.40974	.73592	1.35885	.76318	1.31031	.79117	1.26395	.81995	1.21959	39
22	.70979	1.40887	.73637	1.35802	.76364	1.30952	.79164	1.26319	.82044	1.21886	38
23	.71023	1.40800	.73681	1.35719	.76410	1.30873	.79212	1.26244	.82092	1.21814	37
24	.71066	1.40714	.73726	1.35637	.76456	1.30795	.79259	1.26169	.82141	1.21742	36
25	.71110	1.40627	.73771	1.35554	.76502	1.30716	.79306	1.26093	.82190	1.21670	35
26	.71154	1.40540	.73816	1.35472	.76548	1.30637	.79354	1.26018	.82238	1.21598	34
27	.71198	1.40454	.73861	1.35389	.76594	1.30558	.79401	1.25943	.82287	1.21526	33
28	.71242	1.40367	.73906	1.35307	.76640	1.30480	.79449	1.25867	.82336	1.21454	32
29	.71285	1.40281	.73951	1.35224	.76686	1.30401	.79496	1.25792	.82385	1.21382	31
30	.71329	1.40195	.73996	1.35142	.76733	1.30323	.79544	1.25717	.82434	1.21310	30
31	.71373	1.40109	.74041	1.35060	.76779	1.30244	.79591	1.25642	.82483	1.21238	29
32	.71417	1.40022	.74086	1.34978	.76825	1.30166	.79639	1.25567	.82531	1.21166	28
33	.71461	1.39936	.74131	1.34896	.76871	1.30087	.79686	1.25492	.82580	1.21094	27
34	.71505	1.39850	.74176	1.34814	.76918	1.30009	.79734	1.25417	.82629	1.21023	26
35	.71549	1.39764	.74221	1.34732	.76964	1.29931	.79781	1.25343	.82678	1.20951	25
36	.71593	1.39679	.74267	1.34650	.77010	1.29853	.79829	1.25268	.82727	1.20879	24
37	.71637	1.39593	.74312	1.34568	.77057	1.29775	.79877	1.25193	.82776	1.20808	23
38	.71681	1.39507	.74357	1.34487	.77103	1.29696	.79924	1.25118	.82825	1.20736	22
39	.71725	1.39421	.74402	1.34405	.77149	1.29618	.79972	1.25044	.82874	1.20665	21
40	.71769	1.39336	.74447	1.34323	.77196	1.29541	.80020	1.24969	.82923	1.20593	20
41	.71813	1.39250	.74492	1.34242	.77242	1.29463	.80067	1.24895	.82972	1.20522	19
42	.71857	1.39165	.74538	1.34160	.77289	1.29385	.80115	1.24820	.83022	1.20451	18
43	.71901	1.39079	.74583	1.34079	.77335	1.29307	.80163	1.24746	.83071	1.20379	17
44	.71946	1.38994	.74628	1.33998	.77382	1.29229	.80211	1.24672	.83120	1.20308	16
45	.71990	1.38909	.74674	1.33916	.77428	1.29152	.80258	1.24597	.83169	1.20237	15
46	.72034	1.38824	.74719	1.33835	.77475	1.29074	.80306	1.24523	.83218	1.20166	14
47	.72078	1.38738	.74764	1.33754	.77521	1.28997	.80354	1.24449	.83268	1.20095	13
48	.72122	1.38653	.74810	1.33673	.77568	1.28919	.80402	1.24375	.83317	1.20024	12
49	.72167	1.38568	.74855	1.33592	.77615	1.28842	.80450	1.24301	.83366	1.19953	11
50	.72211	1.38484	.74900	1.33511	.77661	1.28764	.80498	1.24227	.83415	1.19882	10
51	.72255	1.38399	.74946	1.33430	.77708	1.28687	.80546	1.24153	.83465	1.19811	9
52	.72299	1.38314	.74991	1.33349	.77754	1.28610	.80594	1.24079	.83514	1.19740	8
53	.72344	1.38229	.75037	1.33268	.77801	1.28533	.80642	1.24005	.83564	1.19669	7
54	.72388	1.38145	.75082	1.33187	.77848	1.28456	.80690	1.23931	.83613	1.19599	6
55	.72432	1.38060	.75128	1.33107	.77895	1.28379	.80738	1.23858	.83662	1.19528	5
56	.72477	1.37976	.75173	1.33026	.77941	1.28302	.80786	1.23784	.83712	1.19457	4
57	.72521	1.37891	.75219	1.32946	.77988	1.28225	.80834	1.23710	.83761	1.19387	3
58	.72565	1.37807	.75264	1.32865	.78035	1.28148	.80882	1.23637	.83811	1.19316	2
59	.72610	1.37722	.75310	1.32785	.78082	1.28071	.80930	1.23563	.83860	1.19246	1
60	.72654	1.37638	.75355	1.32704	.78129	1.27994	.80978	1.23490	.83910	1.19175	0
′	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	′
	54°		53°		52°		51°		50°		

NATURAL TANGENTS AND COTANGENTS

′	40°		41°		42°		43°		44°		′
	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	
0	.83910	1.19175	.86929	1.15037	.90040	1.11061	.93252	1.07237	.96569	1.03553	60
1	.83960	1.19105	.86980	1.14969	.90093	1.10996	.93306	1.07174	.96625	1.03493	59
2	.84009	1.19035	.87031	1.14902	.90146	1.10931	.93360	1.07112	.96681	1.03433	58
3	.84059	1.18964	.87082	1.14834	.90199	1.10867	.93415	1.07049	.96738	1.03372	57
4	.84108	1.18894	.87133	1.14767	.90251	1.10802	.93469	1.06987	.96794	1.03312	56
5	.84158	1.18824	.87184	1.14699	.90304	1.10737	.93524	1.06925	.96850	1.03252	55
6	.84208	1.18754	.87236	1.14632	.90357	1.10672	.93578	1.06862	.96907	1.03192	54
7	.84258	1.18684	.87287	1.14565	.90410	1.10607	.93633	1.06800	.96963	1.03132	53
8	.84307	1.18614	.87338	1.14498	.90463	1.10543	.93688	1.06738	.97020	1.03072	52
9	.84357	1.18544	.87389	1.14430	.90516	1.10478	.93742	1.06676	.97076	1.03012	51
10	.84407	1.18474	.87441	1.14363	.90569	1.10414	.93797	1.06613	.97133	1.02952	50
11	.84457	1.18404	.87492	1.14296	.90621	1.10349	.93852	1.06551	.97189	1.02892	49
12	.84507	1.18334	.87543	1.14229	.90674	1.10285	.93906	1.06489	.97246	1.02832	48
13	.84556	1.18264	.87595	1.14162	.90727	1.10220	.93961	1.06427	.97302	1.02772	47
14	.84606	1.18194	.87646	1.14095	.90781	1.10156	.94016	1.06365	.97359	1.02713	46
15	.84656	1.18125	.87698	1.14028	.90834	1.10091	.94071	1.06303	.97416	1.02653	45
16	.84706	1.18055	.87749	1.13961	.90887	1.10027	.94125	1.06241	.97472	1.02593	44
17	.84756	1.17986	.87801	1.13894	.90940	1.09963	.94180	1.06179	.97529	1.02533	43
18	.84806	1.17916	.87852	1.13828	.90993	1.09899	.94235	1.06117	.97586	1.02474	42
19	.84856	1.17846	.87904	1.13761	.91046	1.09834	.94290	1.06056	.97643	1.02414	41
20	.84906	1.17777	.87955	1.13694	.91099	1.09770	.94345	1.05994	.97700	1.02355	40
21	.84956	1.17708	.88007	1.13627	.91153	1.09706	.94400	1.05932	.97756	1.02295	39
22	.85006	1.17638	.88059	1.13561	.91206	1.09642	.94455	1.05870	.97813	1.02236	38
23	.85057	1.17569	.88110	1.13494	.91259	1.09578	.94510	1.05809	.97870	1.02176	37
24	.85107	1.17500	.88162	1.13428	.91313	1.09514	.94565	1.05747	.97927	1.02117	36
25	.85157	1.17430	.88214	1.13361	.91366	1.09450	.94620	1.05685	.97984	1.02057	35
26	.85207	1.17361	.88265	1.13295	.91419	1.09386	.94676	1.05624	.98041	1.01998	34
27	.85257	1.17292	.88317	1.13228	.91473	1.09322	.94731	1.05562	.98098	1.01939	33
28	.85308	1.17223	.88369	1.13162	.91526	1.09258	.94786	1.05501	.98155	1.01879	32
29	.85358	1.17154	.88421	1.13096	.91580	1.09195	.94841	1.05439	.98213	1.01820	31
30	.85408	1.17085	.88473	1.13029	.91633	1.09131	.94896	1.05378	.98270	1.01761	30
31	.85458	1.17016	.88524	1.12963	.91687	1.09067	.94952	1.05317	.98327	1.01702	29
32	.85509	1.16947	.88576	1.12897	.91740	1.09003	.95007	1.05255	.98384	1.01642	28
33	.85559	1.16878	.88628	1.12831	.91794	1.08940	.95062	1.05194	.98441	1.01583	27
34	.85609	1.16809	.88680	1.12765	.91847	1.08876	.95118	1.05133	.98499	1.01524	26
35	.85660	1.16741	.88732	1.12699	.91901	1.08813	.95173	1.05072	.98556	1.01465	25
36	.85710	1.16672	.88784	1.12633	.91955	1.08749	.95229	1.05010	.98613	1.01406	24
37	.85761	1.16603	.88836	1.12567	.92008	1.08686	.95284	1.04949	.98671	1.01347	23
38	.85811	1.16535	.88888	1.12501	.92062	1.08622	.95340	1.04888	.98728	1.01288	22
39	.85862	1.16466	.88940	1.12435	.92116	1.08559	.95395	1.04827	.98786	1.01229	21
40	.85912	1.16398	.88992	1.12369	.92170	1.08496	.95451	1.04766	.98843	1.01170	20
41	.85963	1.16329	.89045	1.12303	.92224	1.08432	.95506	1.04705	.98901	1.01112	19
42	.86014	1.16261	.89097	1.12238	.92277	1.08369	.95562	1.04644	.98958	1.01053	18
43	.86064	1.16192	.89149	1.12172	.92331	1.08306	.95618	1.04583	.99016	1.00994	17
44	.86115	1.16124	.89201	1.12106	.92385	1.08243	.95673	1.04522	.99073	1.00935	16
45	.86166	1.16056	.89253	1.12041	.92439	1.08179	.95729	1.04461	.99131	1.00876	15
46	.86216	1.15987	.89306	1.11975	.92493	1.08116	.95785	1.04401	.99189	1.00818	14
47	.86267	1.15919	.89358	1.11909	.92547	1.08053	.95841	1.04340	.99247	1.00759	13
48	.86318	1.15851	.89410	1.11844	.92601	1.07990	.95897	1.04279	.99304	1.00701	12
49	.86368	1.15783	.89463	1.11778	.92655	1.07927	.95952	1.04218	.99362	1.00642	11
50	.86419	1.15715	.89515	1.11713	.92709	1.07864	.96008	1.04158	.99420	1.00583	10
51	.86470	1.15647	.89567	1.11648	.92763	1.07801	.96064	1.04097	.99478	1.00525	9
52	.86521	1.15579	.89620	1.11582	.92817	1.07738	.96120	1.04036	.99536	1.00467	8
53	.86572	1.15511	.89672	1.11517	.92872	1.07676	.96176	1.03976	.99594	1.00408	7
54	.86623	1.15443	.89725	1.11452	.92926	1.07613	.96232	1.03915	.99652	1.00350	6
55	.86674	1.15375	.89777	1.11387	.92980	1.07550	.96288	1.03855	.99710	1.00291	5
56	.86725	1.15308	.89830	1.11321	.93034	1.07487	.96344	1.03794	.99768	1.00233	4
57	.86776	1.15240	.89883	1.11256	.93088	1.07425	.96400	1.03734	.99826	1.00175	3
58	.86827	1.15172	.89935	1.11191	.93143	1.07362	.96457	1.03674	.99884	1.00116	2
59	.86878	1.15104	.89988	1.11126	.93197	1.07299	.96513	1.03613	.99942	1.00058	1
60	.86929	1.15037	.90040	1.11061	.93252	1.07237	.96569	1.03553	1.00000	1.00000	0
′	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	Cotang	Tang	′
	49°		48°		47°		46°		45°		

Table of Angles for Gashing Worm Wheels.

The following table gives the angle with the axis of the worm wheel to which the cutter is to be set for gashing the teeth of worm wheels when the pitch diameter and lead of the worm are known.

If the worm has a pitch diameter which is not given exactly in the table, the angle can be approximated from the nearest sizes entered so as to be well within working limits.

TABLE OF ANGLES FOR GASHING WORM WHEELS.

LEAD.		.1000″	.1111″	.1250″	.1333″	.1429″	.1538″	.1666″	.1818″	.2000″	.2222″	.2500″	.2857″	.3333″	.3636″	.3750″	.4000″	.4285″	.4444″	.5000″	.5714″	.6000″	.6666″	.7500″	.8000″	1.0000″	1.3333″	1.5000″	2.0000″	3.0000″
TURNS PER INCH		10	9	8	$7\frac{1}{2}$	7	$6\frac{1}{2}$	6	$5\frac{1}{2}$	5	$4\frac{1}{2}$	4	$3\frac{1}{2}$	3	$2\frac{3}{4}$	$2\frac{2}{3}$	$2\frac{1}{2}$	$2\frac{1}{3}$	$2\frac{1}{4}$	2	$1\frac{3}{4}$	$1\frac{2}{3}$	$1\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{4}$	1	$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{3}$
PITCH DIAMETERS	$\frac{5}{8}$″	2°-55′	3°-14′	3°-38′	3°-51′	4°-10′	4°-29′	4°-51′	5°-18′	5°-49′	6°-28′	7°-16′	8°-17′	9°-38′	10°-30′	10°-49′	11°-31′														
	$\frac{3}{4}$	2°-26′	2°-42′	3°-2′	3°-14′	3°-28′	3°-44′	4°-3′	4°-25′	4°-51′	5°-23′	6°-4′	6°-55′	8°-3′	8°-46′	9°-3′	9°-38′	10°-18′													
	$\frac{7}{8}$	2°-5′	2°-19′	2°-36′	2°-47′	2°-58′	3°-12′	3°-28′	3°-47′	4°-10′	4°-37′	5°-12′	5°-56′	6°-55′	7°-32′	7°-46′	8°-17′	8°-52′													
	1	1°-49′	2°-1′	2°-17′	2°-26′	2°-36′	2°-48′	3°-2′	3°-19′	3°-39′	4°-3′	4°-33′	5°-12′	6°-3′	6°-36′	6°-48′	7°-15′	7°-47′	8°-3′												
	$1\frac{1}{8}$	1°-37′	1°-48′	2°-2′	2°-10′	2°-19′	2°-30′	2°-42′	2°-57′	3°-14′	3°-36′	4°-3′	4°-37′	5°-23′	5°-52′	6°-4′	6°-27′	6°-55′	7°-10′												
	$1\frac{1}{4}$	1°-28′	1°-37′	1°-49′	1°-57′	2°-5′	2°-15′	2°-26′	2°-39′	2°-55′	3°-14′	3°-39′	4°-10′	4°-51′	5°-17′	5°-27′	5°-49′	6°-14′	6°-27′	7°-15′											
	$1\frac{3}{8}$	1°-20′	1°-28′	1°-39′	1°-46′	1°-54′	2°-2′	2°-13′	2°-25′	2°-39′	2°-57′	3°-19′	3°-47′	4°-25′	4°-49′	4°-58′	5°-17′	5°-40′	5°-52′	6°-36′											
	$1\frac{1}{2}$	1°-13′	1°-21′	1°-31′	1°-37′	1°-44′	1°-52′	2°-1′	2°-13′	2°-26′	2°-42′	3°-2′	3°-28′	4°-3′	4°-25′	4°-33′	4°-51′	5°-12′	5°-23′	6°-3′	6°-55′										
	$1\frac{5}{8}$	1°-7′	1°-15′	1°-24′	1°-30′	1°-36′	1°-44′	1°-52′	2°-2′	2°-15′	2°-30′	2°-48′	3°-12′	3°-44′	4°-4′	4°-12′	4°-29′	4°-48′	4°-59′	5°-36′	6°-23′	6°-42′									
	$1\frac{3}{4}$	1°-2′	1°-9′	1°-18′	1°-23′	1°-29′	1°-36′	1°-44′	1°-54′	2°-5′	2°-19′	2°-36′	2°-58′	3°-28′	3°-47′	3°-54′	4°-10′	4°-27′	4°-37′	5°-12′	5°-56′	6°-14′									
	$1\frac{7}{8}$	58′	1°-5′	1°-13′	1°-18	1°-25′	1°-30′	1°-37′	1°-46	1°-57′	2°-10′	2°-26′	2°-47′	3°-14′	3° 32′	3°-39′	3°-53′	4°-10′	4°-19′	4°-51′	5°-32	5°-49′	6°-27′								
	2	55′	1°-1′	1°-8′	1°-13′	1°-18′	1°-24′	1°-31′	1°-39′	1°-49′	2°-2′	2°-17′	2°-36′	3°-2′	3°-19′	3°-25′	3°-39′	3°-54′	4°-3′	4°-33′	5°-12	5°-27′	6°-3′								
	$2\frac{1}{8}$	52′	57′	1°-4′	1°-9′	1°-14′	1°-19′	1°-26′	1°-34′	1°-43′	1°-54′	2°-9′	2°-27′	2°-52′	3°-7′	3°-13′	3°-26′	3°-40′	3°-46′	4°-17′	4°-54	5°-8′	5°-42′	6°-25′							
	$2\frac{1}{4}$	49′	54	1°-1′	1°-5′	1°-9′	1°-15′	1° 21′	1° 28′	1° 37′	1° 48′	2°-2′	2°-19′	2°-42′	2°-57′	3°-2′	3°-14′	3°-28′	3°-36′	4°-3′	4°-37′	4°-51′	5°-23′	6°-3′							
	$2\frac{3}{8}$	46′	51′	58′	1°-1′	1°-6′	1°-11′	1°-17′	1°-24′	1°-32′	1°-42′	1°-55′	2°-12′	2°-33′	2°-47′	2°-53′	3°-4′	3°-17′	3°-25′	3°-50′	4°-23′	4°-36′	5°-6′	5°-44′	6°-7′						
	$2\frac{1}{2}$	44′	49′	54′	58′	1°-3′	1°-7′	1°-13′	1°-20′	1°-27′	1°-37′	1°-49′	2°-5′	2°-26′	2°-39′	2°-44′	2°-55′	3°-7′	3°-14′	3°-39′	4°-10′	4°-22′	4°-51′	5°-27′	5°-49′						

TABLE OF ANGLES FOR GASHING WORM WHEELS.

LEAD.	.1000″	.1111″	.1250″	.1333″	.1429″	.1538″	.1666″	.1818″	.2000″	.2222″	.2500″	.2857″	.3333″	.3636″	.3750″	.4000″	.4285″	.4444″	.5000″	.5714″	.6000″	.6666″	.7500″	.8000″	1.0000″	1.3333″	1.5000″	2.0000″	3.0000″
TURNS PER INCH	10	9	8	$7\frac{1}{2}$	7	$6\frac{1}{2}$	6	$5\frac{1}{2}$	5	$4\frac{1}{2}$	4	$3\frac{1}{2}$	3	$2\frac{3}{4}$	$2\frac{2}{3}$	$2\frac{1}{2}$	$2\frac{1}{3}$	$2\frac{1}{4}$	2	$1\frac{3}{4}$	$1\frac{2}{3}$	$1\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{4}$	1	$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{3}$
PITCH DIAMETERS.																													
$2\frac{5}{8}$″	42′	46′	52′	56′	1°	1°4′	1°9′	1°16′	1°23′	1°33′	1°44′	1°59′	2°19′	2°31′	2°36′	2°47′	2°59′	3°5′	3°28′	3°58′	4°10′	4°37′	5°12′	5°32′	6°55′				
$2\frac{3}{4}$	40′	44′	50′	53′	57′	1°1′	1°6′	1°12′	1°20′	1°28′	1°39′	1°54′	2°13′	2°25′	2°29′	2°39′	2°50′	2°57′	3°19′	3°47′	3°58′	4°25′	4°58′	5°17′	6°36′				
$2\frac{7}{8}$	38′	42′	48′	51′	54′	58′	1°3′	1°9′	1°16′	1°25′	1°35′	1°49′	2°7′	2°18′	2°23′	2°32′	2°43′	2°49′	3°10′	3°37′	3°48′	4°13′	4°45′	5°4′	6°19′	8°24′			
3	36′	40′	46′	49′	52′	56′	1°1′	1°6′	1°13′	1°21′	1°31′	1°44′	2°2′	2°13′	2°17′	2°26′	2°36′	2°42′	3°2′	3°28′	3°39′	4°3′	4°33′	4°51′	6°3′	8°3′	9°3′		
$3\frac{1}{4}$	34′	38′	42′	45′	48′	52′	56′	1°1′	1°7′	1°15′	1°24′	1°36′	1°52′	2°2′	2°6′	2°14′	2°24′	2°30′	2°48′	3°12′	3°22′	3°44′	4°12′	4°29′	5°36′	7°26′	8°22′		
$3\frac{1}{2}$	32′	35′	39′	42′	45′	48′	52′	57′	1°3′	1°9′	1°18′	1°29′	1°44′	1°54′	1°57′	2°5′	2°14′	2°19′	2°36′	2°59′	3°7′	3°28′	3°54′	4°10′	5°12′	6°54′	7°46′	10°19′	
$3\frac{3}{4}$	30′	33′	36′	39′	42′	46′	48′	53′	58′	1°5′	1°13′	1°23′	1°37′	1°46′	1°49′	1°57′	2°5′	2°10′	2°26′	2°47′	2°55′	3°14′	3°39′	3°53′	4°51′	6°27′	7°15′	9°38′	
4		31′	34′	37′	39′	42′	46′	50′	55′	1°1′	1°8′	1°18′	1°31′	1°39′	1°43′	1°49′	1°55′	2°2′	2°17′	2°36′	2°44′	3°2′	3°25′	3°39′	4°33′	6°4′	6°49′	9°3′	13°26′
$4\frac{1}{4}$			32′	34′	37′	40′	43′	47′	52′	57′	1°4′	1°14′	1°26′	1°34′	1°37′	1°43′	1°50′	1°54′	2°9′	2°27′	2°34′	2°52′	3°13′	3°26′	4°17′	5°42′	6°26′	8°32′	12°40′	
$4\frac{1}{2}$				32′	35′	37′	40′	44′	49′	54′	1°1′	1°9′	1°21′	1°28′	1°31′	1°37′	1°41′	1°48′	2°2′	2°19′	2°26′	2°42′	3°2′	3°14′	4°3′	5°23′	6°4′	8°3′	11°59′		
$4\frac{3}{4}$					33′	35′	38′	42′	46′	51′	58′	1°6′	1°17′	1°24′	1°26′	1°32′	1°37′	1°42′	1°55′	2°12′	2°18′	2°33′	2°53′	3°4′	3°50′	5°6′	6°44′	7°38′	11°22′
5						34′	36′	40′	44′	49′	55′	1°3′	1°13′	1°20′	1°22′	1°28′	1°34′	1°37′	1°49′	2°5′	2°11′	2°26′	2°44′	2°55′	3°39′	4°51′	5°27′	7°15′	10°49′
$5\frac{1}{4}$							35′	38′	42′	46′	52′	1°1′	1°9′	1°16′	1°18′	1°23′	1°29′	1°33′	1°44′	1°59′	2°5′	2°19′	2°36′	2°47′	3°28′	4°37′	5°12′	6°54′	10°19′
$5\frac{1}{2}$								36′	40′	44′	50′	57′	1°6′	1°12′	1°15′	1°20′	1°25′	1°28′	1°39′	1°54′	1°59′	2°13′	2°29′	2°39′	3°19′	4°25′	4°58′	6°36′	9°51′
$5\frac{3}{4}$									38′	42′	48′	54′	1°3′	1°9′	1°11′	1°16′	1°22′	1°24′	1°35′	1°49′	1°54′	2°7′	2°23′	2°32′	3°10′	4°13′	4°45′	6°19′	9°26′
6										40′	46′	52′	1°1′	1°6′	1°8′	1°13′	1°18′	1°21′	1°31′	1°44′	1°49′	2°1′	2°17′	2°26′	3°2′	4°2′	4°33′	6°3′	9°2′

Tables of Prime Numbers and Factors.

1 to 10200.

In making use of these tables, the following explanation may be of assistance: the two columns at the left give the last two figures of the number to be factored; the first column gives all numbers to 50 and the second column from 50 to 100.

EXAMPLE 1.—Required, the factors of 138. Refer to the column of numbers from 100 to 150 and follow down the column until opposite 38 in the left-hand column; the factors are found to be $2 \times 3 \times 23$.

EXAMPLE 2.—Required, the factors for 1672. Refer to the column of numbers from 1650 to 1700 and follow down the column until opposite 72 in the second column at the left; the factors are found to be $2^3 \times 11 \times 19$ or, more conveniently stated for factoring, $2 \times 2 \times 2 \times 11 \times 19$.

Prime Numbers and Factors, 1–300.

From	To	0	50	100	150	200	250
		50	100	150	200	250	300
0	50	.....	$2\cdot5^2$	$2^2\cdot5^2$	$2\cdot3\cdot5^2$	$2^3\cdot5^2$	$2\cdot5^3$
1	51	.....	$3\cdot17$	.....	.....	$3\cdot67$	.....
2	52	.....	$2^2\cdot13$	$2\cdot3\cdot17$	$2^3\cdot19$	$2\cdot101$	$2^2\cdot3^2\cdot7$
3	53	.....	.....	.....	$3^2\cdot17$	$7\cdot29$	$11\cdot23$
4	54	2^2	$2\cdot3^3$	$2^3\cdot13$	$2\cdot7\cdot11$	$2^2\cdot3\cdot17$	$2\cdot127$
5	55	.....	$5\cdot11$	$3\cdot5\cdot7$	$5\cdot31$	$5\cdot41$	$3\cdot5\cdot17$
6	56	$2\cdot3$	$2^3\cdot7$	$2\cdot53$	$2^2\cdot3\cdot13$	$2\cdot103$	2^8
7	57	.....	$3\cdot19$	.....	.....	$3^2\cdot23$	.....
8	58	2^3	$2\cdot29$	$2^2\cdot3^3$	$2\cdot79$	$2^4\cdot13$	$2\cdot3\cdot43$
9	59	3^2	.....	.....	$3\cdot53$	$11\cdot19$	$7\cdot37$
10	60	$2\cdot5$	$2^2\cdot3\cdot5$	$2\cdot5\cdot11$	$2^5\cdot5$	$2\cdot3\cdot5\cdot7$	$2^2\cdot5\cdot13$
11	61	.....	.....	$3\cdot37$	$7\cdot23$	.....	$3^2\cdot29$
12	62	$2^2\cdot3$	$2\cdot31$	$2^4\cdot7$	$2\cdot3^4$	$2^2\cdot53$	$2\cdot131$
13	63	.....	$3^2\cdot7$	.....	.....	$3\cdot71$	.....
14	64	$2\cdot7$	2^6	$2\cdot3\cdot19$	$2^2\cdot41$	$2\cdot107$	$2^3\cdot3\cdot11$
15	65	$3\cdot5$	$5\cdot13$	$5\cdot23$	$3\cdot5\cdot11$	$5\cdot43$	$5\cdot53$
16	66	2^4	$2\cdot3\cdot11$	$2^2\cdot29$	$2\cdot83$	$2^3\cdot3^3$	$2\cdot7\cdot19$
17	67	.....	.....	$3^2\cdot13$	.....	$7\cdot31$	$3\cdot89$
18	68	$2\cdot3^2$	$2^2\cdot17$	$2\cdot59$	$2^3\cdot3\cdot7$	$2\cdot109$	$2^2\cdot67$
19	69	.....	$3\cdot23$	$7\cdot17$	13^2	$3\cdot73$	.....
20	70	$2^2\cdot5$	$2\cdot5\cdot7$	$2^3\cdot3\cdot5$	$2\cdot5\cdot17$	$2^2\cdot5\cdot11$	$2\cdot3^3\cdot5$
21	71	$3\cdot7$	.....	11^2	$3^2\cdot19$	$13\cdot17$	.....
22	72	$2\cdot11$	$2^3\cdot3^2$	$2\cdot61$	$2^2\cdot43$	$2\cdot3\cdot37$	$2^4\cdot17$
23	73	.....	.....	$3\cdot41$	.....	.....	$3\cdot7\cdot13$
24	74	$2^3\cdot3$	$2\cdot37$	$2^2\cdot31$	$2\cdot3\cdot29$	$2^5\cdot7$	$2\cdot137$
25	75	5^2	$3\cdot5^2$	5^3	$5^2\cdot7$	$3^2\cdot5^2$	$5^2\cdot11$
26	76	$2\cdot13$	$2^2\cdot19$	$2\cdot3^2\cdot7$	$2^4\cdot11$	$2\cdot113$	$2^2\cdot3\cdot23$
27	77	3^3	$7\cdot11$	.....	$3\cdot59$	.....	.....
28	78	$2^2\cdot7$	$2\cdot3\cdot13$	2^7	$2\cdot89$	$2^2\cdot3\cdot19$	$2\cdot139$
29	79	.....	.....	$3\cdot43$	.....	.....	$3^2\cdot31$
30	80	$2\cdot3\cdot5$	$2^4\cdot5$	$2\cdot5\cdot13$	$2^2\cdot3^2\cdot5$	$2\cdot5\cdot23$	$2^3\cdot5\cdot7$
31	81	.....	3^4	.....	.....	$3\cdot7\cdot11$	.....
32	82	2^5	$2\cdot41$	$2^2\cdot3\cdot11$	$2\cdot7\cdot13$	$2^3\cdot29$	$2\cdot3\cdot47$
33	83	$3\cdot11$	.....	$7\cdot19$	$3\cdot61$	.....	.....
34	84	$2\cdot17$	$2^2\cdot3\cdot7$	$2\cdot67$	$2^3\cdot23$	$2\cdot3^2\cdot13$	$2^2\cdot71$
35	85	$5\cdot7$	$5\cdot17$	$3^3\cdot5$	$5\cdot37$	$5\cdot47$	$3\cdot5\cdot19$
36	86	$2^2\cdot3^2$	$2\cdot43$	$2^3\cdot17$	$2\cdot3\cdot31$	$2^2\cdot59$	$2\cdot11\cdot13$
37	87	.....	$3\cdot29$	.....	$11\cdot17$	$3\cdot79$	$7\cdot41$
38	88	$2\cdot19$	$2^3\cdot11$	$2\cdot3\cdot23$	$2^2\cdot47$	$2\cdot7\cdot17$	$2^5\cdot3^2$
39	89	$3\cdot13$	.....	.....	$3^3\cdot7$	.....	17^2
40	90	$2^3\cdot5$	$2\cdot3^2\cdot5$	$2^2\cdot5\cdot7$	$2\cdot5\cdot19$	$2^4\cdot3\cdot5$	$2\cdot5\cdot29$
41	91	.....	$7\cdot13$	$3\cdot47$	.....	....	$3\cdot97$
42	92	$2\cdot3\cdot7$	$2^2\cdot23$	$2\cdot71$	$2^6\cdot3$	$2\cdot11^2$	$2^2\cdot73$
43	93	.....	$3\cdot31$	$11\cdot13$	.....	3^5	.....
44	94	$2^2\cdot11$	$2\cdot47$	$2^4\cdot3^2$	$2\cdot97$	$2^2\cdot61$	$2\cdot3\cdot7^2$
45	95	$3^2\cdot5$	$5\cdot19$	$5\cdot29$	$3\cdot5\cdot13$	$5\cdot7^2$	$5\cdot59$
46	96	$2\cdot23$	$2^5\cdot3$	$2\cdot73$	$2^2\cdot7^2$	$2\cdot3\cdot41$	$2^3\cdot37$
47	97	.....	.....	$3\cdot7^2$	.....	$13\cdot19$	$3^3\cdot11$
48	98	$2^4\cdot3$	$2\cdot7^2$	$2^2\cdot37$	$2\cdot3^2\cdot11$	$2^3\cdot31$	$2\cdot149$
49	99	7^2	$3^2\cdot11$	.....	.....	$3\cdot83$	$13\cdot23$
50	100	$2\cdot5^2$	$2^2\cdot5^2$	$2\cdot3\cdot5^2$	$2^3\cdot5^2$	$2\cdot5^3$	$2^2\cdot3\cdot5^2$

Prime Numbers and Factors, 300–600.

From	To	300	350	400	450	500	550
		350	400	450	500	550	600
0	50	$2^2 \cdot 3 \cdot 5^2$	$2 \cdot 5^2 \cdot 7$	$2^4 \cdot 5^2$	$2 \cdot 3^2 \cdot 5^2$	$2^2 \cdot 5^3$	$2 \cdot 5^2 \cdot 11$
1	51	$7 \cdot 43$	$3^3 \cdot 13$	.....	$11 \cdot 41$	$3 \cdot 167$	$19 \cdot 29$
2	52	$2 \cdot 151$	$2^5 \cdot 11$	$2 \cdot 3 \cdot 67$	$2^2 \cdot 113$	$2 \cdot 251$	$2^3 \cdot 3 \cdot 23$
3	53	$3 \cdot 101$	.....	$13 \cdot 31$	$3 \cdot 151$	.....	$7 \cdot 79$
4	54	$2^4 \cdot 19$	$2 \cdot 3 \cdot 59$	$2^2 \cdot 101$	$2 \cdot 227$	$2^3 \cdot 3^2 \cdot 7$	$2 \cdot 277$
5	55	$5 \cdot 61$	$5 \cdot 71$	$3^4 \cdot 5$	$5 \cdot 7 \cdot 13$	$5 \cdot 101$	$3 \cdot 5 \cdot 37$
6	56	$2 \cdot 3^2 \cdot 17$	$2^2 \cdot 89$	$2 \cdot 7 \cdot 29$	$2^3 \cdot 3 \cdot 19$	$2 \cdot 11 \cdot 23$	$2^2 \cdot 139$
7	57	.....	$3 \cdot 7 \cdot 17$	$11 \cdot 37$	.....	$3 \cdot 13^2$	.....
8	58	$2^2 \cdot 7 \cdot 11$	$2 \cdot 179$	$2^3 \cdot 3 \cdot 17$	$2 \cdot 229$	$2^2 \cdot 127$	$2 \cdot 3^2 \cdot 31$
9	59	$3 \cdot 103$	.....	.....	$3^3 \cdot 17$	.....	$13 \cdot 43$
10	60	$2 \cdot 5 \cdot 31$	$2^3 \cdot 3^2 \cdot 5$	$2 \cdot 5 \cdot 41$	$2^2 \cdot 5 \cdot 23$	$2 \cdot 3 \cdot 5 \cdot 17$	$2^4 \cdot 5 \cdot 7$
11	61	.....	19^2	$3 \cdot 137$	.....	$7 \cdot 73$	$3 \cdot 11 \cdot 17$
12	62	$2^3 \cdot 3 \cdot 13$	$2 \cdot 181$	$2^2 \cdot 103$	$2 \cdot 3 \cdot 7 \cdot 11$	2^9	$2 \cdot 281$
13	63	.....	$3 \cdot 11^2$	$7 \cdot 59$	.....	$3^3 \cdot 19$	.....
14	64	$2 \cdot 157$	$2^2 \cdot 7 \cdot 13$	$2 \cdot 3^2 \cdot 23$	$2^4 \cdot 29$	$2 \cdot 257$	$2^2 \cdot 3 \cdot 47$
15	65	$3^2 \cdot 5 \cdot 7$	$5 \cdot 73$	$5 \cdot 83$	$3 \cdot 5 \cdot 31$	$5 \cdot 103$	$5 \cdot 113$
16	66	$2^2 \cdot 79$	$2 \cdot 3 \cdot 61$	$2^5 \cdot 13$	$2 \cdot 233$	$2^2 \cdot 3 \cdot 43$	$2 \cdot 283$
17	67	.....	.....	$3 \cdot 139$	.....	$11 \cdot 47$	$3^4 \cdot 7$
18	68	$2 \cdot 3 \cdot 53$	$2^4 \cdot 23$	$2 \cdot 11 \cdot 19$	$2^2 \cdot 3^2 \cdot 13$	$2 \cdot 7 \cdot 37$	$2^3 \cdot 71$
19	69	$11 \cdot 29$	$3^2 \cdot 41$	.....	$7 \cdot 67$	$3 \cdot 173$	.....
20	70	$2^6 \cdot 5$	$2 \cdot 5 \cdot 37$	$2^2 \cdot 3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 47$	$2^3 \cdot 5 \cdot 13$	$2 \cdot 3 \cdot 5 \cdot 19$
21	71	$3 \cdot 107$	$7 \cdot 53$	.....	$3 \cdot 157$	.....	.....
22	72	$2 \cdot 7 \cdot 23$	$2^2 \cdot 3 \cdot 31$	$2 \cdot 211$	$2^3 \cdot 59$	$2 \cdot 3^2 \cdot 29$	$2^2 \cdot 11 \cdot 13$
23	73	$17 \cdot 19$	.....	$3^2 \cdot 47$	$11 \cdot 43$	.....	$3 \cdot 191$
24	74	$2^2 \cdot 3^4$	$2 \cdot 11 \cdot 17$	$2^3 \cdot 53$	$2 \cdot 3 \cdot 79$	$2^2 \cdot 131$	$2 \cdot 7 \cdot 41$
25	75	$5^2 \cdot 13$	$3 \cdot 5^3$	$5^2 \cdot 17$	$5^2 \cdot 19$	$3 \cdot 5^2 \cdot 7$	$5^2 \cdot 23$
26	76	$2 \cdot 163$	$2^3 \cdot 47$	$2 \cdot 3 \cdot 71$	$2^2 \cdot 7 \cdot 17$	$2 \cdot 263$	$2^6 \cdot 3^2$
27	77	$3 \cdot 109$	$13 \cdot 29$	$7 \cdot 61$	$3^2 \cdot 53$	$17 \cdot 31$	.....
28	78	$2^3 \cdot 41$	$2 \cdot 3^3 \cdot 7$	$2^2 \cdot 107$	$2 \cdot 239$	$2^4 \cdot 3 \cdot 11$	$2 \cdot 17^2$
29	79	$7 \cdot 47$	.....	$3 \cdot 11 \cdot 13$	.....	23^2	$3 \cdot 193$
30	80	$2 \cdot 3 \cdot 5 \cdot 11$	$2^2 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 43$	$2^5 \cdot 3 \cdot 5$	$2 \cdot 5 \cdot 53$	$2^2 \cdot 5 \cdot 29$
31	81	.....	$3 \cdot 127$	.....	$13 \cdot 37$	$3^2 \cdot 59$	$7 \cdot 83$
32	82	$2^2 \cdot 83$	$2 \cdot 191$	$2^4 \cdot 3^3$	$2 \cdot 241$	$2^2 \cdot 7 \cdot 19$	$2 \cdot 3 \cdot 97$
33	83	$3^2 \cdot 37$	.....	.....	$3 \cdot 7 \cdot 23$	$13 \cdot 41$	$11 \cdot 53$
34	84	$2 \cdot 167$	$2^7 \cdot 3$	$2 \cdot 7 \cdot 31$	$2^2 \cdot 11^2$	$2 \cdot 3 \cdot 89$	$2^3 \cdot 73$
35	85	$5 \cdot 67$	$5 \cdot 7 \cdot 11$	$3 \cdot 5 \cdot 29$	$5 \cdot 97$	$5 \cdot 107$	$3^2 \cdot 5 \cdot 13$
36	86	$2^4 \cdot 3 \cdot 7$	$2 \cdot 193$	$2^2 \cdot 109$	$2 \cdot 3^5$	$2^3 \cdot 67$	$2 \cdot 293$
37	87	.....	$3^2 \cdot 43$	$19 \cdot 23$	.....	$3 \cdot 179$	.....
38	88	$2 \cdot 13^2$	$2^2 \cdot 97$	$2 \cdot 3 \cdot 73$	$2^3 \cdot 61$	$2 \cdot 269$	$2^2 \cdot 3 \cdot 7^2$
39	89	$3 \cdot 113$	.....	.....	$3 \cdot 163$	$7^2 \cdot 11$	$19 \cdot 31$
40	90	$2^2 \cdot 5 \cdot 17$	$2 \cdot 3 \cdot 5 \cdot 13$	$2^3 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 7^2$	$2^2 \cdot 3^3 \cdot 5$	$2 \cdot 5 \cdot 59$
41	91	$11 \cdot 31$	$17 \cdot 23$	$3^2 \cdot 7^2$	.....	.....	$3 \cdot 197$
42	92	$2 \cdot 3^2 \cdot 19$	$2^3 \cdot 7^2$	$2 \cdot 13 \cdot 17$	$2^2 \cdot 3 \cdot 41$	$2 \cdot 271$	$2^4 \cdot 37$
43	93	7^3	$3 \cdot 131$	.....	$17 \cdot 29$	$3 \cdot 181$	.....
44	94	$2^3 \cdot 43$	$2 \cdot 197$	$2^2 \cdot 3 \cdot 37$	$2 \cdot 13 \cdot 19$	$2^5 \cdot 17$	$2 \cdot 3^3 \cdot 11$
45	95	$3 \cdot 5 \cdot 23$	$5 \cdot 79$	$5 \cdot 89$	$3^2 \cdot 5 \cdot 11$	$5 \cdot 109$	$5 \cdot 7 \cdot 17$
46	96	$2 \cdot 173$	$2^2 \cdot 3^2 \cdot 11$	$2 \cdot 223$	$2^4 \cdot 31$	$2 \cdot 3 \cdot 7 \cdot 13$	$2^2 \cdot 149$
47	97	.....	.....	$3 \cdot 149$	$7 \cdot 71$	.....	$3 \cdot 199$
48	98	$2^2 \cdot 3 \cdot 29$	$2 \cdot 199$	$2^6 \cdot 7$	$2 \cdot 3 \cdot 83$	$2^2 \cdot 137$	$2 \cdot 13 \cdot 23$
49	99	.....	$3 \cdot 7 \cdot 19$	.....	.....	$3^2 \cdot 61$	.....
50	100	$2 \cdot 5^2 \cdot 7$	$2^4 \cdot 5^2$	$2 \cdot 3^2 \cdot 5^2$	$2^2 \cdot 5^3$	$2 \cdot 5^2 \cdot 11$	$2^3 \cdot 3 \cdot 5^2$

Prime Numbers and Factors, 600–900.

From		600	650	700	750	800	850
To		650	700	750	800	850	900
0	50	$2^3 \cdot 3 \cdot 5^2$	$2 \cdot 5^2 \cdot 13$	$2^2 \cdot 5^2 \cdot 7$	$2 \cdot 3 \cdot 5^3$	$2^5 \cdot 5^2$	$2 \cdot 5^2 \cdot 17$
1	51	.....	$3 \cdot 7 \cdot 31$	.....	.....	$3^2 \cdot 89$	$23 \cdot 37$
2	52	$2 \cdot 7 \cdot 43$	$2^2 \cdot 163$	$2 \cdot 3^3 \cdot 13$	$2^4 \cdot 47$	$2 \cdot 401$	$2^2 \cdot 3 \cdot 71$
3	53	$3^2 \cdot 67$	.....	$19 \cdot 37$	$3 \cdot 251$	$11 \cdot 73$	.....
4	54	$2^2 \cdot 151$	$2 \cdot 3 \cdot 109$	$2^6 \cdot 11$	$2 \cdot 13 \cdot 29$	$2^2 \cdot 3 \cdot 67$	$2 \cdot 7 \cdot 61$
5	55	$5 \cdot 11^2$	$5 \cdot 131$	$3 \cdot 5 \cdot 47$	$5 \cdot 151$	$5 \cdot 7 \cdot 23$	$3^2 \cdot 5 \cdot 19$
6	56	$2 \cdot 3 \cdot 101$	$2^4 \cdot 41$	$2 \cdot 353$	$2^2 \cdot 3^3 \cdot 7$	$2 \cdot 13 \cdot 31$	$2^3 \cdot 107$
7	57	.....	$3^2 \cdot 73$	$7 \cdot 101$	....	$3 \cdot 269$	.....
8	58	$2^5 \cdot 19$	$2 \cdot 7 \cdot 47$	$2^2 \cdot 3 \cdot 59$	$2 \cdot 379$	$2^3 \cdot 101$	$2 \cdot 3 \cdot 11 \cdot 13$
9	59	$3 \cdot 7 \cdot 29$	.....	.....	$3 \cdot 11 \cdot 23$	.....	.....
10	60	$2 \cdot 5 \cdot 61$	$2^2 \cdot 3 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 71$	$2^3 \cdot 5 \cdot 19$	$2 \cdot 3^4 \cdot 5$	$2^2 \cdot 5 \cdot 43$
11	61	$13 \cdot 47$	.....	$3^2 \cdot 79$	.....	.....	$3 \cdot 7 \cdot 41$
12	62	$2^2 \cdot 3^2 \cdot 17$	$2 \cdot 331$	$2^3 \cdot 89$	$2 \cdot 3 \cdot 127$	$2^2 \cdot 7 \cdot 29$	$2 \cdot 431$
13	63	.....	$3 \cdot 13 \cdot 17$	$23 \cdot 31$	$7 \cdot 109$	$3 \cdot 271$	... .
14	64	$2 \cdot 307$	$2^3 \cdot 83$	$2 \cdot 3 \cdot 7 \cdot 17$	$2^2 \cdot 191$	$2 \cdot 11 \cdot 37$	$2^5 \cdot 3^3$
15	65	$3 \cdot 5 \cdot 41$	$5 \cdot 7 \cdot 19$	$5 \cdot 11 \cdot 13$	$3^2 \cdot 5 \cdot 17$	$5 \cdot 163$	$5 \cdot 173$
16	66	$2^3 \cdot 7 \cdot 11$	$2 \cdot 3^2 \cdot 37$	$2^2 \cdot 179$	$2 \cdot 383$	$2^4 \cdot 3 \cdot 17$	$2 \cdot 433$
17	67	.....	$23 \cdot 29$	$3 \cdot 239$	$13 \cdot 59$	$19 \cdot 43$	$3 \cdot 17^2$
18	68	$2 \cdot 3 \cdot 103$	$2^2 \cdot 167$	$2 \cdot 359$	$2^8 \cdot 3$	$2 \cdot 409$	$2^2 \cdot 7 \cdot 31$
19	69	.....	$3 \cdot 223$	.....	.....	$3^2 \cdot 7 \cdot 13$	$11 \cdot 79$
20	70	$2^2 \cdot 5 \cdot 31$	$2 \cdot 5 \cdot 67$	$2^4 \cdot 3^2 \cdot 5$	$2 \cdot 5 \cdot 7 \cdot 11$	$2^2 \cdot 5 \cdot 41$	$2 \cdot 3 \cdot 5 \cdot 29$
21	71	$3^3 \cdot 23$	$11 \cdot 61$	$7 \cdot 103$	$3 \cdot 257$	.....	$13 \cdot 67$
22	72	$2 \cdot 311$	$2^5 \cdot 3 \cdot 7$	$2 \cdot 19^2$	$2^2 \cdot 193$	$2 \cdot 3 \cdot 137$	$2^3 \cdot 109$
23	73	$7 \cdot 89$	.....	$3 \cdot 241$	.....	.....	$3^2 \cdot 97$
24	74	$2^4 \cdot 3 \cdot 13$	$2 \cdot 337$	$2^2 \cdot 181$	$2 \cdot 3^2 \cdot 43$	$2^3 \cdot 103$	$2 \cdot 19 \cdot 23$
25	75	5^4	$3^3 \cdot 5^2$	$5^2 \cdot 29$	$5^2 \cdot 31$	$3 \cdot 5^2 \cdot 11$	$5^3 \cdot 7$
26	76	$2 \cdot 313$	$2^2 \cdot 13^2$	$2 \cdot 3 \cdot 11^2$	$2^3 \cdot 97$	$2 \cdot 7 \cdot 59$	$2^2 \cdot 3 \cdot 73$
27	77	$3 \cdot 11 \cdot 19$	.....	.....	$3 \cdot 7 \cdot 37$	.....	.....
28	78	$2^2 \cdot 157$	$2 \cdot 3 \cdot 113$	$2^3 \cdot 7 \cdot 13$	$2 \cdot 389$	$2^2 \cdot 3^2 \cdot 23$	$2 \cdot 439$
29	79	$17 \cdot 37$	$7 \cdot 97$	3^6	$19 \cdot 41$	.....	$3 \cdot 293$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 7$	$2^3 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 73$	$2^2 \cdot 3 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 83$	$2^4 \cdot 5 \cdot 11$
31	81	.....	$3 \cdot 227$	$17 \cdot 43$	$11 \cdot 71$	$3 \cdot 277$	.....
32	82	$2^3 \cdot 79$	$2 \cdot 11 \cdot 31$	$2^2 \cdot 3 \cdot 61$	$2 \cdot 17 \cdot 23$	$2^6 \cdot 13$	$2 \cdot 3^2 \cdot 7^2$
33	83	$3 \cdot 211$	.....	.....	$3^3 \cdot 29$	$7^2 \cdot 17$	.....
34	84	$2 \cdot 317$	$2^2 \cdot 3^2 \cdot 19$	$2 \cdot 367$	$2^4 \cdot 7^2$	$2 \cdot 3 \cdot 139$	$2^2 \cdot 13 \cdot 17$
35	85	$5 \cdot 127$	$5 \cdot 137$	$3 \cdot 5 \cdot 7^2$	$5 \cdot 157$	$5 \cdot 167$	$3 \cdot 5 \cdot 59$
36	86	$2^2 \cdot 3 \cdot 53$	$2 \cdot 7^3$	$2^5 \cdot 23$	$2 \cdot 3 \cdot 131$	$2^2 \cdot 11 \cdot 19$	$2 \cdot 443$
37	87	$7^2 \cdot 13$	$3 \cdot 229$	$11 \cdot 67$	.....	$3^3 \cdot 31$	.....
38	88	$2 \cdot 11 \cdot 29$	$2^4 \cdot 43$	$2 \cdot 3^2 \cdot 41$	$2^2 \cdot 197$	$2 \cdot 419$	$2^3 \cdot 3 \cdot 37$
39	89	$3^2 \cdot 71$	$13 \cdot 53$	.....	$3 \cdot 263$	.....	$7 \cdot 127$
40	90	$2^7 \cdot 5$	$2 \cdot 3 \cdot 5 \cdot 23$	$2^2 \cdot 5 \cdot 37$	$2 \cdot 5 \cdot 79$	$2^3 \cdot 3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 89$
41	91	.....	.....	$3 \cdot 13 \cdot 19$	$7 \cdot 113$	29^2	$3^4 \cdot 11$
42	92	$2 \cdot 3 \cdot 107$	$2^2 \cdot 173$	$2 \cdot 7 \cdot 53$	$2^3 \cdot 3^2 \cdot 11$	$2 \cdot 421$	$2^2 \cdot 223$
43	93	.....	$3^2 \cdot 7 \cdot 11$	.....	$13 \cdot 61$	$3 \cdot 281$	$19 \cdot 47$
44	94	$2^2 \cdot 7 \cdot 23$	$2 \cdot 347$	$2^3 \cdot 3 \cdot 31$	$2 \cdot 397$	$2^2 \cdot 211$	$2 \cdot 3 \cdot 149$
45	95	$3 \cdot 5 \cdot 43$	$5 \cdot 139$	$5 \cdot 149$	$3 \cdot 5 \cdot 53$	$5 \cdot 13^2$	$5 \cdot 179$
46	96	$2 \cdot 17 \cdot 19$	$2^5 \cdot 3 \cdot 29$	$2 \cdot 373$	$2^2 \cdot 199$	$2 \cdot 3^2 \cdot 47$	$2^7 \cdot 7$
47	97	.....	$17 \cdot 41$	$3^2 \cdot 83$	.....	$7 \cdot 11^2$	$3 \cdot 13 \cdot 23$
48	98	$2^3 \cdot 3^4$	$2 \cdot 349$	$2^2 \cdot 11 \cdot 17$	$2 \cdot 3 \cdot 7 \cdot 19$	$2^4 \cdot 53$	$2 \cdot 449$
49	99	$11 \cdot 59$	$3 \cdot 233$	$7 \cdot 107$	$17 \cdot 47$	$3 \cdot 283$	$29 \cdot 31$
50	100	$2 \cdot 5^2 \cdot 13$	$2^2 \cdot 5^2 \cdot 7$	$2 \cdot 3 \cdot 5^3$	$2^5 \cdot 5^2$	$2 \cdot 5^2 \cdot 17$	$2^2 \cdot 3^2 \cdot 5^2$

Prime Numbers and Factors, 900–1200.

From	To	900	950	1000	1050	1100	1150
		950	1000	1050	1100	1150	1200
0	50	$2^2 \cdot 3^2 \cdot 5^2$	$2 \cdot 5^2 \cdot 19$	$2^3 \cdot 5^3$	$2 \cdot 3 \cdot 5^2 \cdot 7$	$2^2 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 23$
1	51	$17 \cdot 53$	$3 \cdot 317$	$7 \cdot 11 \cdot 13$	.....	$3 \cdot 367$	.....
2	52	$2 \cdot 11 \cdot 41$	$2^3 \cdot 7 \cdot 17$	$2 \cdot 3 \cdot 167$	$2^2 \cdot 263$	$2 \cdot 19 \cdot 29$	$2^7 \cdot 3^2$
3	53	$3 \cdot 7 \cdot 43$	.....	$17 \cdot 59$	$3^4 \cdot 13$	.....	.....
4	54	$2^3 \cdot 113$	$2 \cdot 3^2 \cdot 53$	$2^2 \cdot 251$	$2 \cdot 17 \cdot 31$	$2^4 \cdot 3 \cdot 23$	$2 \cdot 577$
5	55	$5 \cdot 181$	$5 \cdot 191$	$3 \cdot 5 \cdot 67$	$5 \cdot 211$	$5 \cdot 13 \cdot 17$	$3 \cdot 5 \cdot 7 \cdot 11$
6	56	$2 \cdot 3 \cdot 151$	$2^2 \cdot 239$	$2 \cdot 503$	$2^5 \cdot 3 \cdot 11$	$2 \cdot 7 \cdot 79$	$2^2 \cdot 17^2$
7	57	.....	$3 \cdot 11 \cdot 29$	$19 \cdot 53$	$7 \cdot 151$	$3^3 \cdot 41$	$13 \cdot 89$
8	58	$2^2 \cdot 227$	$2 \cdot 479$	$2^4 \cdot 3^2 \cdot 7$	$2 \cdot 23^2$	$2^2 \cdot 277$	$2 \cdot 3 \cdot 193$
9	59	$3^2 \cdot 101$	$7 \cdot 137$	.....	$3 \cdot 353$	.....	$19 \cdot 61$
10	60	$2 \cdot 5 \cdot 7 \cdot 13$	$2^6 \cdot 3 \cdot 5$	$2 \cdot 5 \cdot 101$	$2^2 \cdot 5 \cdot 53$	$2 \cdot 3 \cdot 5 \cdot 37$	$2^3 \cdot 5 \cdot 29$
11	61	.....	31^2	$3 \cdot 337$	.....	$11 \cdot 101$	$3^3 \cdot 43$
12	62	$2^4 \cdot 3 \cdot 19$	$2 \cdot 13 \cdot 37$	$2^2 \cdot 11 \cdot 23$	$2 \cdot 3^2 \cdot 59$	$2^3 \cdot 139$	$2 \cdot 7 \cdot 83$
13	63	$11 \cdot 83$	$3^2 \cdot 107$	.....	.....	$3 \cdot 7 \cdot 53$	.....
14	64	$2 \cdot 457$	$2^2 \cdot 241$	$2 \cdot 3 \cdot 13^2$	$2^3 \cdot 7 \cdot 19$	$2 \cdot 557$	$2^2 \cdot 3 \cdot 97$
15	65	$3 \cdot 5 \cdot 61$	$5 \cdot 193$	$5 \cdot 7 \cdot 29$	$3 \cdot 5 \cdot 71$	$5 \cdot 223$	$5 \cdot 233$
16	66	$2^2 \cdot 229$	$2 \cdot 3 \cdot 7 \cdot 23$	$2^3 \cdot 127$	$2 \cdot 13 \cdot 41$	$2^2 \cdot 3^2 \cdot 31$	$2 \cdot 11 \cdot 53$
17	67	$7 \cdot 131$	.....	$3^2 \cdot 113$	$11 \cdot 97$	.....	$3 \cdot 389$
18	68	$2 \cdot 3^3 \cdot 17$	$2^3 \cdot 11^2$	$2 \cdot 509$	$2^2 \cdot 3 \cdot 89$	$2 \cdot 13 \cdot 43$	$2^4 \cdot 73$
19	69	.....	$3 \cdot 17 \cdot 19$	.....	.....	$3 \cdot 373$	$7 \cdot 167$
20	70	$2^3 \cdot 5 \cdot 23$	$2 \cdot 5 \cdot 97$	$2^2 \cdot 3 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 107$	$2^5 \cdot 5 \cdot 7$	$2 \cdot 3^2 \cdot 5 \cdot 13$
21	71	$3 \cdot 307$	.....	.....	$3^2 \cdot 7 \cdot 17$	$19 \cdot 59$	.....
22	72	$2 \cdot 461$	$2^2 \cdot 3^5$	$2 \cdot 7 \cdot 73$	$2^4 \cdot 67$	$2 \cdot 3 \cdot 11 \cdot 17$	$2^2 \cdot 293$
23	73	$13 \cdot 71$	$7 \cdot 139$	$3 \cdot 11 \cdot 31$	$29 \cdot 37$	.....	$3 \cdot 17 \cdot 23$
24	74	$2^2 \cdot 3 \cdot 7 \cdot 11$	$2 \cdot 487$	2^{10}	$2 \cdot 3 \cdot 179$	$2^2 \cdot 281$	$2 \cdot 587$
25	75	$5^2 \cdot 37$	$3 \cdot 5^2 \cdot 13$	$5^2 \cdot 41$	$5^2 \cdot 43$	$3^2 \cdot 5^3$	$5^2 \cdot 47$
26	76	$2 \cdot 463$	$2^4 \cdot 61$	$2 \cdot 3^3 \cdot 19$	$2^2 \cdot 269$	$2 \cdot 563$	$2^3 \cdot 3 \cdot 7^2$
27	77	$3^2 \cdot 103$	.....	$13 \cdot 79$	$3 \cdot 359$	$7^2 \cdot 23$	$11 \cdot 107$
28	78	$2^5 \cdot 29$	$2 \cdot 3 \cdot 163$	$2^2 \cdot 257$	$2 \cdot 7^2 \cdot 11$	$2^3 \cdot 3 \cdot 47$	$2 \cdot 19 \cdot 31$
29	79	.....	$11 \cdot 89$	$3 \cdot 7^3$	$13 \cdot 83$	.....	$3^2 \cdot 131$
30	80	$2 \cdot 3 \cdot 5 \cdot 31$	$2^2 \cdot 5 \cdot 7^2$	$2 \cdot 5 \cdot 103$	$2^3 \cdot 3^3 \cdot 5$	$2 \cdot 5 \cdot 113$	$2^2 \cdot 5 \cdot 59$
31	81	$7^2 \cdot 19$	$3^2 \cdot 109$	.....	$23 \cdot 47$	$3 \cdot 13 \cdot 29$	.....
32	82	$2^2 \cdot 233$	$2 \cdot 491$	$2^3 \cdot 3 \cdot 43$	$2 \cdot 541$	$2^2 \cdot 283$	$2 \cdot 3 \cdot 197$
33	83	$3 \cdot 311$	.....	.....	$3 \cdot 19^2$	$11 \cdot 103$	$7 \cdot 13^2$
34	84	$2 \cdot 467$	$2^3 \cdot 3 \cdot 41$	$2 \cdot 11 \cdot 47$	$2^2 \cdot 271$	$2 \cdot 3^4 \cdot 7$	$2^5 \cdot 37$
35	85	$5 \cdot 11 \cdot 17$	$5 \cdot 197$	$3^2 \cdot 5 \cdot 23$	$5 \cdot 7 \cdot 31$	$5 \cdot 227$	$3 \cdot 5 \cdot 79$
36	86	$2^3 \cdot 3^2 \cdot 13$	$2 \cdot 17 \cdot 29$	$2^2 \cdot 7 \cdot 37$	$2 \cdot 3 \cdot 181$	$2^4 \cdot 71$	$2 \cdot 593$
37	87	.....	$3 \cdot 7 \cdot 47$	$17 \cdot 61$	.....	$3 \cdot 379$	.....
38	88	$2 \cdot 7 \cdot 67$	$2^2 \cdot 13 \cdot 19$	$2 \cdot 3 \cdot 173$	$2^6 \cdot 17$	$2 \cdot 569$	$2^2 \cdot 3^3 \cdot 11$
39	89	$3 \cdot 313$	$23 \cdot 43$	.....	$3^2 \cdot 11^2$	$17 \cdot 67$	$29 \cdot 41$
40	90	$2^2 \cdot 5 \cdot 47$	$2 \cdot 3^2 \cdot 5 \cdot 11$	$2^4 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 109$	$2^2 \cdot 3 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 7 \cdot 17$
41	91	.....	.....	$3 \cdot 347$	.....	$7 \cdot 163$	$3 \cdot 397$
42	92	$2 \cdot 3 \cdot 157$	$2^5 \cdot 31$	$2 \cdot 521$	$2^2 \cdot 3 \cdot 7 \cdot 13$	$2 \cdot 571$	$2^3 \cdot 149$
43	93	$23 \cdot 41$	$3 \cdot 331$	$7 \cdot 149$	.....	$3^2 \cdot 127$	.....
44	94	$2^4 \cdot 59$	$2 \cdot 7 \cdot 71$	$2^2 \cdot 3^2 \cdot 29$	$2 \cdot 547$	$2^3 \cdot 11 \cdot 13$	$2 \cdot 3 \cdot 199$
45	95	$3^3 \cdot 5 \cdot 7$	$5 \cdot 199$	$5 \cdot 11 \cdot 19$	$3 \cdot 5 \cdot 73$	$5 \cdot 229$	$5 \cdot 239$
46	96	$2 \cdot 11 \cdot 43$	$2^2 \cdot 3 \cdot 83$	$2 \cdot 523$	$2^3 \cdot 137$	$2 \cdot 3 \cdot 191$	$2^2 \cdot 13 \cdot 23$
47	97	.....	.....	$3 \cdot 349$	.....	$31 \cdot 37$	$3^2 \cdot 7 \cdot 19$
48	98	$2^2 \cdot 3 \cdot 79$	$2 \cdot 499$	$2^3 \cdot 131$	$2 \cdot 3^2 \cdot 61$	$2^2 \cdot 7 \cdot 41$	$2 \cdot 599$
49	99	$13 \cdot 73$	$3^3 \cdot 37$	.....	$7 \cdot 157$	$3 \cdot 383$	$11 \cdot 109$
50	100	$2 \cdot 5^2 \cdot 19$	$2^3 \cdot 5^3$	$2 \cdot 3 \cdot 5^2 \cdot 7$	$2^2 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 23$	$2^4 \cdot 3 \cdot 5^2$

Prime Numbers and Factors, 1200–1500.

From	To	1200 1250	1250 1300	1300 1350	1350 1400	1400 1450	1450 1500
0	50	$2^4 \cdot 3 \cdot 5^2$	$2 \cdot 5^4$	$2^2 \cdot 5^2 \cdot 13$	$2 \cdot 3^3 \cdot 5^2$	$2^3 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 29$
1	51	.....	$3^2 \cdot 139$	.....	$7 \cdot 193$	$3 \cdot 467$	.....
2	52	$2 \cdot 601$	$2^2 \cdot 313$	$2 \cdot 3 \cdot 7 \cdot 31$	$2^3 \cdot 13^2$	$2 \cdot 701$	$2^2 \cdot 3 \cdot 11^2$
3	53	$3 \cdot 401$	$7 \cdot 179$	.....	$3 \cdot 11 \cdot 41$	$23 \cdot 61$	.....
4	54	$2^2 \cdot 7 \cdot 43$	$2 \cdot 3 \cdot 11 \cdot 19$	$2^3 \cdot 163$	$2 \cdot 677$	$2^2 \cdot 3^3 \cdot 13$	$2 \cdot 727$
5	55	$5 \cdot 241$	$5 \cdot 251$	$3^2 \cdot 5 \cdot 29$	$5 \cdot 271$	$5 \cdot 281$	$3 \cdot 5 \cdot 97$
6	56	$2 \cdot 3^2 \cdot 67$	$2^3 \cdot 157$	$2 \cdot 653$	$2^2 \cdot 3 \cdot 113$	$2 \cdot 19 \cdot 37$	$2^4 \cdot 7 \cdot 13$
7	57	$17 \cdot 71$	$3 \cdot 419$	.....	$23 \cdot 59$	$3 \cdot 7 \cdot 67$	$31 \cdot 47$
8	58	$2^3 \cdot 151$	$2 \cdot 17 \cdot 37$	$2^2 \cdot 3 \cdot 109$	$2 \cdot 7 \cdot 97$	$2^7 \cdot 11$	$2 \cdot 3^6$
9	59	$3 \cdot 13 \cdot 31$	.....	$7 \cdot 11 \cdot 17$	$3^2 \cdot 151$	.....	.....
10	60	$2 \cdot 5 \cdot 11^2$	$2^2 \cdot 3^2 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 131$	$2^4 \cdot 5 \cdot 17$	$2 \cdot 3 \cdot 5 \cdot 47$	$2^2 \cdot 5 \cdot 73$
11	61	$7 \cdot 173$	$13 \cdot 97$	$3 \cdot 19 \cdot 23$	.....	$17 \cdot 83$	$3 \cdot 487$
12	62	$2^2 \cdot 3 \cdot 101$	$2 \cdot 631$	$2^5 \cdot 41$	$2 \cdot 3 \cdot 227$	$2^2 \cdot 353$	$2 \cdot 17 \cdot 43$
13	63	.....	$3 \cdot 421$	$13 \cdot 101$	$29 \cdot 47$	$3^2 \cdot 157$	$7 \cdot 11 \cdot 19$
14	64	$2 \cdot 607$	$2^4 \cdot 79$	$2 \cdot 3^2 \cdot 73$	$2^2 \cdot 11 \cdot 31$	$2 \cdot 7 \cdot 101$	$2^3 \cdot 3 \cdot 61$
15	65	$3^5 \cdot 5$	$5 \cdot 11 \cdot 23$	$5 \cdot 263$	$3 \cdot 5 \cdot 7 \cdot 13$	$5 \cdot 283$	$5 \cdot 293$
16	66	$2^6 \cdot 19$	$2 \cdot 3 \cdot 211$	$2^2 \cdot 7 \cdot 47$	$2 \cdot 683$	$2^3 \cdot 3 \cdot 59$	$2 \cdot 733$
17	67	.....	$7 \cdot 181$	$3 \cdot 439$	.....	$13 \cdot 109$	$3^2 \cdot 163$
18	68	$2 \cdot 3 \cdot 7 \cdot 29$	$2^2 \cdot 317$	$2 \cdot 659$	$2^3 \cdot 3^2 \cdot 19$	$2 \cdot 709$	$2^2 \cdot 367$
19	69	$23 \cdot 53$	$3^3 \cdot 47$	.....	37^2	$3 \cdot 11 \cdot 43$	$13 \cdot 113$
20	70	$2^2 \cdot 5 \cdot 61$	$2 \cdot 5 \cdot 127$	$2^3 \cdot 3 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 137$	$2^2 \cdot 5 \cdot 71$	$2 \cdot 3 \cdot 5 \cdot 7^2$
21	71	$3 \cdot 11 \cdot 37$	$31 \cdot 41$	.....	$3 \cdot 457$	$7^2 \cdot 29$	.....
22	72	$2 \cdot 13 \cdot 47$	$2^3 \cdot 3 \cdot 53$	$2 \cdot 661$	$2^2 \cdot 7^3$	$2 \cdot 3^4 \cdot 79$	$2^6 \cdot 23$
23	73	.....	$19 \cdot 67$	$3^3 \cdot 7^2$	.....	.....	$3 \cdot 491$
24	74	$2^3 \cdot 3^2 \cdot 17$	$2 \cdot 7^2 \cdot 13$	$2^2 \cdot 331$	$2 \cdot 3 \cdot 229$	$2^4 \cdot 89$	$2 \cdot 11 \cdot 67$
25	75	$5^2 \cdot 7^2$	$3 \cdot 5^2 \cdot 17$	$5^2 \cdot 53$	$5^3 \cdot 11$	$3 \cdot 5^2 \cdot 19$	$5^2 \cdot 59$
26	76	$2 \cdot 613$	$2^2 \cdot 11 \cdot 29$	$2 \cdot 3 \cdot 13 \cdot 17$	$2^5 \cdot 43$	$2 \cdot 23 \cdot 31$	$2^2 \cdot 3^2 \cdot 41$
27	77	$3 \cdot 409$	.....	.....	$3^4 \cdot 17$	.....	$7 \cdot 211$
28	78	$2^2 \cdot 307$	$2 \cdot 3^2 \cdot 71$	$2^4 \cdot 83$	$2 \cdot 13 \cdot 53$	$2^2 \cdot 3 \cdot 7 \cdot 17$	$2 \cdot 739$
29	79	.....	.....	$3 \cdot 443$	$7 \cdot 197$	.....	$3 \cdot 17 \cdot 29$
30	80	$2 \cdot 3 \cdot 5 \cdot 41$	$2^8 \cdot 5$	$2 \cdot 5 \cdot 7 \cdot 19$	$2^2 \cdot 3 \cdot 5 \cdot 23$	$2 \cdot 5 \cdot 11 \cdot 13$	$2^3 \cdot 5 \cdot 37$
31	81	.....	$3 \cdot 7 \cdot 61$	11^3	.....	$3^3 \cdot 53$	.....
32	82	$2^4 \cdot 7 \cdot 11$	$2 \cdot 641$	$2^4 \cdot 3^2 \cdot 37$	$2 \cdot 691$	$2^3 \cdot 179$	$2 \cdot 3 \cdot 13 \cdot 19$
33	83	$3^2 \cdot 137$	.....	$31 \cdot 43$	$3 \cdot 461$	.....	.....
34	84	$2 \cdot 617$	$2^2 \cdot 3 \cdot 107$	$2 \cdot 23 \cdot 29$	$2^3 \cdot 173$	$2 \cdot 3 \cdot 239$	$2^2 \cdot 7 \cdot 53$
35	85	$5 \cdot 13 \cdot 19$	$5 \cdot 257$	$3 \cdot 5 \cdot 89$	$5 \cdot 277$	$5 \cdot 7 \cdot 41$	$3^3 \cdot 5 \cdot 11$
36	86	$2^2 \cdot 3 \cdot 103$	$2 \cdot 643$	$2^3 \cdot 167$	$2 \cdot 3^2 \cdot 7 \cdot 11$	$2^2 \cdot 359$	$2 \cdot 743$
37	87	.....	$3^2 \cdot 11 \cdot 13$	$7 \cdot 191$	$19 \cdot 73$	$3 \cdot 479$	.....
38	88	$2 \cdot 619$	$2^3 \cdot 7 \cdot 23$	$2 \cdot 3 \cdot 223$	$2^2 \cdot 347$	$2 \cdot 719$	$2^4 \cdot 3 \cdot 31$
39	89	$3 \cdot 7 \cdot 59$	.....	$13 \cdot 103$	$3 \cdot 463$	.....	.....
40	90	$2^3 \cdot 5 \cdot 31$	$2 \cdot 3 \cdot 5 \cdot 43$	$2^2 \cdot 5 \cdot 67$	$2 \cdot 5 \cdot 139$	$2^5 \cdot 3^2 \cdot 5$	$2 \cdot 5 \cdot 149$
41	91	$17 \cdot 73$	.....	$3^2 \cdot 149$	$13 \cdot 107$	$11 \cdot 131$	$3 \cdot 7 \cdot 71$
42	92	$2 \cdot 3^3 \cdot 23$	$2^2 \cdot 17 \cdot 19$	$2 \cdot 11 \cdot 61$	$2^4 \cdot 3 \cdot 29$	$2 \cdot 7 \cdot 103$	$2^2 \cdot 373$
43	93	$11 \cdot 113$	$3 \cdot 431$	$17 \cdot 79$	$7 \cdot 199$	$3 \cdot 13 \cdot 37$	.....
44	94	$2^2 \cdot 311$	$2 \cdot 647$	$2^6 \cdot 3 \cdot 7$	$2 \cdot 17 \cdot 41$	$2^2 \cdot 19^2$	$2 \cdot 3^2 \cdot 83$
45	95	$3 \cdot 5 \cdot 83$	$5 \cdot 7 \cdot 37$	$5 \cdot 269$	$3^2 \cdot 5 \cdot 31$	$5 \cdot 17^2$	$5 \cdot 13 \cdot 23$
46	96	$2 \cdot 7 \cdot 89$	$2^1 \cdot 3^4$	$2 \cdot 673$	$2^2 \cdot 349$	$2 \cdot 3 \cdot 241$	$2^3 \cdot 11 \cdot 17$
47	97	$29 \cdot 43$	.....	$3 \cdot 449$	$11 \cdot 127$	.....	$3 \cdot 499$
48	98	$2^5 \cdot 3 \cdot 13$	$2 \cdot 11 \cdot 59$	$2^4 \cdot 337$	$2 \cdot 3 \cdot 233$	$2^3 \cdot 181$	$2 \cdot 7 \cdot 107$
49	99	.....	$3 \cdot 433$	$19 \cdot 71$	.....	$3^2 \cdot 7 \cdot 23$	.....
50	100	$2 \cdot 5^4$	$2^2 \cdot 5^2 \cdot 13$	$2 \cdot 3^3 \cdot 5^2$	$2^3 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 29$	$2^2 \cdot 3 \cdot 5^3$

Prime Numbers and Factors, 1500–1800.

From	To	1500	1550	1600	1650	1700	1750
		1550	1600	1650	1700	1750	1800
0	50	$2^2 \cdot 3 \cdot 5^3$	$2 \cdot 5^2 \cdot 31$	$2^6 \cdot 5^2$	$2 \cdot 3 \cdot 5^2 \cdot 11$	$2^2 \cdot 5^2 \cdot 17$	$2 \cdot 5^3 \cdot 7$
1	51	$19 \cdot 79$	$3 \cdot 11 \cdot 47$	.....	$13 \cdot 127$	$3^5 \cdot 7$	$17 \cdot 103$
2	52	$2 \cdot 751$	$2^4 \cdot 97$	$2 \cdot 3^2 \cdot 89$	$2^2 \cdot 7 \cdot 59$	$2 \cdot 23 \cdot 37$	$2^3 \cdot 3 \cdot 73$
3	53	$3^2 \cdot 167$	.....	$7 \cdot 229$	$3 \cdot 19 \cdot 29$	$13 \cdot 131$	.....
4	54	$2^5 \cdot 47$	$2 \cdot 3 \cdot 7 \cdot 37$	$2^2 \cdot 401$	$2 \cdot 827$	$2^3 \cdot 3 \cdot 71$	$2 \cdot 877$
5	55	$5 \cdot 7 \cdot 43$	$5 \cdot 311$	$3 \cdot 5 \cdot 107$	$5 \cdot 331$	$5 \cdot 11 \cdot 31$	$3^3 \cdot 5 \cdot 13$
6	56	$2 \cdot 3 \cdot 251$	$2^2 \cdot 389$	$2 \cdot 11 \cdot 73$	$2^3 \cdot 3^2 \cdot 23$	$2 \cdot 853$	$2^2 \cdot 439$
7	57	$11 \cdot 137$	$3^2 \cdot 173$	.....	.....	$3 \cdot 569$	$7 \cdot 251$
8	58	$2^2 \cdot 13 \cdot 29$	$2 \cdot 19 \cdot 41$	$2^3 \cdot 3 \cdot 67$	$2 \cdot 829$	$2^2 \cdot 7 \cdot 61$	$2 \cdot 3 \cdot 293$
9	59	$3 \cdot 503$	.....	.....	$3 \cdot 7 \cdot 79$	.....	....
10	60	$2 \cdot 5 \cdot 151$	$2^3 \cdot 3 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 7 \cdot 23$	$2^2 \cdot 5 \cdot 83$	$2 \cdot 3^2 \cdot 5 \cdot 19$	$2^3 \cdot 5 \cdot 11$
11	61	.....	$7 \cdot 223$	$3^2 \cdot 179$	$11 \cdot 151$	$29 \cdot 59$	$3 \cdot 587$
12	62	$2^3 \cdot 3^3 \cdot 7$	$2 \cdot 11 \cdot 71$	$2^2 \cdot 13 \cdot 31$	$2 \cdot 3 \cdot 277$	$2^4 \cdot 107$	$2 \cdot 881$
13	63	$17 \cdot 89$	$3 \cdot 521$	.....	.....	$3 \cdot 571$	$41 \cdot 43$
14	64	$2 \cdot 757$	$2^2 \cdot 17 \cdot 23$	$2 \cdot 3 \cdot 269$	$2^7 \cdot 13$	$2 \cdot 857$	$2^2 \cdot 3^2 \cdot 7^2$
15	65	$3 \cdot 5 \cdot 101$	$5 \cdot 313$	$5 \cdot 17 \cdot 19$	$3^2 \cdot 5 \cdot 37$	$5 \cdot 7^3$	$5 \cdot 353$
16	66	$2^2 \cdot 379$	$2 \cdot 3^3 \cdot 29$	$2^4 \cdot 101$	$2 \cdot 7^2 \cdot 17$	$2^2 \cdot 3 \cdot 11 \cdot 13$	$2 \cdot 883$
17	67	$37 \cdot 41$	.....	$3 \cdot 7^2 \cdot 11$	.....	$17 \cdot 101$	$3 \cdot 19 \cdot 31$
18	68	$2 \cdot 3 \cdot 11 \cdot 23$	$2^5 \cdot 7^2$	$2 \cdot 809$	$2^2 \cdot 3 \cdot 139$	$2 \cdot 859$	$2^3 \cdot 13 \cdot 17$
19	69	$7^2 \cdot 31$	$3 \cdot 523$	.....	.....	$3^2 \cdot 191$	$29 \cdot 61$
20	70	$2^4 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 157$	$2^2 \cdot 3^4 \cdot 5$	$2 \cdot 5 \cdot 167$	$2^3 \cdot 5 \cdot 43$	$2 \cdot 3 \cdot 5 \cdot 59$
21	71	$3^2 \cdot 13^2$	.....	.....	$3 \cdot 557$	.....	$7 \cdot 11 \cdot 23$
22	72	$2 \cdot 761$	$2^2 \cdot 3 \cdot 131$	$2 \cdot 811$	$2^3 \cdot 11 \cdot 19$	$2 \cdot 3 \cdot 7 \cdot 41$	$2^2 \cdot 443$
23	73	.....	$11^2 \cdot 13$	$3 \cdot 541$	$7 \cdot 239$	.....	$3^2 \cdot 197$
24	74	$2^2 \cdot 3 \cdot 127$	$2 \cdot 787$	$2^3 \cdot 7 \cdot 29$	$2 \cdot 3^3 \cdot 31$	$2^2 \cdot 431$	$2 \cdot 887$
25	75	$5^2 \cdot 61$	$3^2 \cdot 5^2 \cdot 7$	$5^3 \cdot 13$	$5^2 \cdot 67$	$3 \cdot 5^2 \cdot 23$	$5^2 \cdot 71$
26	76	$2 \cdot 7 \cdot 109$	$2^3 \cdot 197$	$2 \cdot 3 \cdot 271$	$2^2 \cdot 419$	$2 \cdot 863$	$2^4 \cdot 3 \cdot 37$
27	77	$3 \cdot 509$	$19 \cdot 83$	.....	$3 \cdot 13 \cdot 43$	$11 \cdot 157$	.....
28	78	$2^3 \cdot 191$	$2 \cdot 3 \cdot 263$	$2^2 \cdot 11 \cdot 37$	$2 \cdot 839$	$2^6 \cdot 3^3$	$2 \cdot 7 \cdot 127$
29	79	$11 \cdot 139$	.....	$3^2 \cdot 181$	$23 \cdot 73$	$7 \cdot 13 \cdot 19$	$3 \cdot 593$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 17$	$2^2 \cdot 5 \cdot 79$	$2 \cdot 5 \cdot 163$	$2^4 \cdot 3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 173$	$2^2 \cdot 5 \cdot 89$
31	81	.....	$3 \cdot 17 \cdot 31$	$7 \cdot 233$	41^2	$3 \cdot 577$	$13 \cdot 137$
32	82	$2^2 \cdot 383$	$2 \cdot 7 \cdot 113$	$2^5 \cdot 3 \cdot 17$	$2 \cdot 29^2$	$2^2 \cdot 433$	$2 \cdot 3^4 \cdot 11$
33	83	$3 \cdot 7 \cdot 73$	.....	$23 \cdot 71$	$3^2 \cdot 11 \cdot 17$	.....	.....
34	84	$2 \cdot 13 \cdot 59$	$2^4 \cdot 3^2 \cdot 11$	$2 \cdot 19 \cdot 43$	$2^2 \cdot 421$	$2 \cdot 3 \cdot 17^2$	$2^3 \cdot 223$
35	85	$5 \cdot 307$	$5 \cdot 317$	$3 \cdot 5 \cdot 109$	$5 \cdot 337$	$5 \cdot 347$	$3 \cdot 5 \cdot 7 \cdot 17$
36	86	$2^9 \cdot 3$	$2 \cdot 13 \cdot 61$	$2^2 \cdot 409$	$2 \cdot 3 \cdot 281$	$2^3 \cdot 7 \cdot 31$	$2 \cdot 19 \cdot 47$
37	87	$29 \cdot 53$	$3 \cdot 23^2$	.....	$7 \cdot 241$	$3^2 \cdot 193$	.....
38	88	$2 \cdot 769$	$2^2 \cdot 397$	$2 \cdot 3^2 \cdot 7 \cdot 13$	$2^3 \cdot 211$	$2 \cdot 11 \cdot 79$	$2^2 \cdot 3 \cdot 149$
39	89	$3^4 \cdot 19$	$7 \cdot 227$	$11 \cdot 149$	$3 \cdot 563$	$37 \cdot 47$	.....
40	90	$2^2 \cdot 5 \cdot 7 \cdot 11$	$2 \cdot 3 \cdot 5 \cdot 53$	$2^3 \cdot 5 \cdot 41$	$2 \cdot 5 \cdot 13^2$	$2^2 \cdot 3 \cdot 5 \cdot 29$	$2 \cdot 5 \cdot 179$
41	91	$23 \cdot 67$	$37 \cdot 43$	$3 \cdot 547$	$19 \cdot 89$	.....	$3^2 \cdot 199$
42	92	$2 \cdot 3 \cdot 257$	$2^3 \cdot 199$	$2 \cdot 821$	$2^2 \cdot 3^2 \cdot 47$	$2 \cdot 13 \cdot 67$	$2^8 \cdot 7$
43	93	.....	$3^3 \cdot 59$	$31 \cdot 53$	.....	$3 \cdot 7 \cdot 83$	$11 \cdot 163$
44	94	$2^3 \cdot 193$	$2 \cdot 797$	$2^2 \cdot 3 \cdot 137$	$2 \cdot 7 \cdot 11^2$	$2^4 \cdot 109$	$2 \cdot 3 \cdot 13 \cdot 23$
45	95	$3 \cdot 5 \cdot 103$	$5 \cdot 11 \cdot 29$	$5 \cdot 7 \cdot 47$	$3 \cdot 5 \cdot 113$	$5 \cdot 349$	$5 \cdot 359$
46	96	$2 \cdot 773$	$2^2 \cdot 3 \cdot 7 \cdot 19$	$2 \cdot 823$	$2^5 \cdot 53$	$2 \cdot 3^2 \cdot 97$	$2^2 \cdot 449$
47	97	$7 \cdot 13 \cdot 17$	.....	$3^3 \cdot 61$	.....	.....	$3 \cdot 599$
48	98	$2^2 \cdot 3^2 \cdot 43$	$2 \cdot 17 \cdot 47$	$2^4 \cdot 103$	$2 \cdot 3 \cdot 283$	$2^2 \cdot 19 \cdot 23$	$2 \cdot 29 \cdot 31$
49	99	.....	$3 \cdot 13 \cdot 41$	$17 \cdot 97$	.....	$3 \cdot 11 \cdot 53$	$7 \cdot 257$
50	100	$2 \cdot 5^2 \cdot 31$	$2^6 \cdot 5^2$	$2 \cdot 3 \cdot 5^2 \cdot 11$	$2^2 \cdot 5^2 \cdot 17$	$2 \cdot 5^3 \cdot 7$	$2^3 \cdot 3^2 \cdot 5^2$

Prime Numbers and Factors, 1800–2100.

From	To	1800 1850	1850 1900	1900 1950	1950 2000	2000 2050	2050 2100
0	50	$2^3 \cdot 3^2 \cdot 5^2$	$2 \cdot 5^2 \cdot 37$	$2^2 \cdot 5^2 \cdot 19$	$2 \cdot 3 \cdot 5^2 \cdot 13$	$2^4 \cdot 5^3$	$2 \cdot 5^2 \cdot 41$
1	51	.....	$3 \cdot 617$	.....	.....	$3 \cdot 23 \cdot 29$	$7 \cdot 293$
2	52	$2 \cdot 17 \cdot 53$	$2^2 \cdot 463$	$2 \cdot 3 \cdot 317$	$2^5 \cdot 61$	$2 \cdot 7 \cdot 11 \cdot 13$	$2^2 \cdot 3^3 \cdot 19$
3	53	$3 \cdot 601$	$17 \cdot 109$	$11 \cdot 173$	$3^2 \cdot 7 \cdot 31$	.....	.....
4	54	$2^2 \cdot 11 \cdot 41$	$2 \cdot 3^2 \cdot 103$	$2^4 \cdot 7 \cdot 17$	$2 \cdot 977$	$2^2 \cdot 3 \cdot 167$	$2 \cdot 13 \cdot 79$
5	55	$5 \cdot 19^2$	$5 \cdot 7 \cdot 53$	$3 \cdot 5 \cdot 127$	$5 \cdot 17 \cdot 23$	$5 \cdot 401$	$3 \cdot 5 \cdot 137$
6	56	$2 \cdot 3 \cdot 7 \cdot 43$	$2^6 \cdot 29$	$2 \cdot 953$	$2^2 \cdot 3 \cdot 163$	$2 \cdot 17 \cdot 59$	$2^3 \cdot 257$
7	57	$13 \cdot 139$	$3 \cdot 619$	.....	$19 \cdot 103$	$3^2 \cdot 223$	$11^2 \cdot 17$
8	58	$2^4 \cdot 113$	$2 \cdot 929$	$2^2 \cdot 3^2 \cdot 53$	$2 \cdot 11 \cdot 89$	$2^3 \cdot 251$	$2 \cdot 3 \cdot 7^3$
9	59	$3^3 \cdot 67$	$11 \cdot 13^2$	$23 \cdot 83$	$3 \cdot 653$	$7^2 \cdot 41$	$29 \cdot 71$
10	60	$2 \cdot 5 \cdot 181$	$2^2 \cdot 3 \cdot 5 \cdot 31$	$2 \cdot 5 \cdot 191$	$2^3 \cdot 5 \cdot 7^2$	$2 \cdot 3 \cdot 5 \cdot 67$	$2^2 \cdot 5 \cdot 103$
11	61	.....	.....	$3 \cdot 7^2 \cdot 13$	$37 \cdot 53$	.....	$3^2 \cdot 229$
12	62	$2^2 \cdot 3 \cdot 151$	$2 \cdot 7^2 \cdot 19$	$2^3 \cdot 239$	$2 \cdot 3^2 \cdot 109$	$2^2 \cdot 503$	$2 \cdot 1031$
13	63	$7^2 \cdot 37$	$3^4 \cdot 23$	.....	$13 \cdot 151$	$3 \cdot 11 \cdot 61$	.....
14	64	$2 \cdot 907$	$2^3 \cdot 233$	$2 \cdot 3 \cdot 11 \cdot 29$	$2^2 \cdot 491$	$2 \cdot 19 \cdot 53$	$2^4 \cdot 3 \cdot 43$
15	65	$3 \cdot 5 \cdot 11^2$	$5 \cdot 373$	$5 \cdot 383$	$3 \cdot 5 \cdot 131$	$5 \cdot 13 \cdot 31$	$5 \cdot 7 \cdot 59$
16	66	$2^3 \cdot 227$	$2 \cdot 3 \cdot 311$	$2^2 \cdot 479$	$2 \cdot 983$	$2^5 \cdot 3^2 \cdot 7$	$2 \cdot 1033$
17	67	$23 \cdot 79$	.....	$3^3 \cdot 71$	$7 \cdot 281$	.....	$3 \cdot 13 \cdot 53$
18	68	$2 \cdot 3^2 \cdot 101$	$2^2 \cdot 467$	$2 \cdot 7 \cdot 137$	$2^4 \cdot 3 \cdot 41$	$2 \cdot 1009$	$2^2 \cdot 11 \cdot 47$
19	69	$17 \cdot 107$	$3 \cdot 7 \cdot 89$	$19 \cdot 101$	$11 \cdot 179$	$3 \cdot 673$	.....
20	70	$2^2 \cdot 5 \cdot 7 \cdot 13$	$2 \cdot 5 \cdot 11 \cdot 17$	$2^7 \cdot 3 \cdot 5$	$2 \cdot 5 \cdot 197$	$2^2 \cdot 5 \cdot 101$	$2 \cdot 3^2 \cdot 5 \cdot 23$
21	71	$3 \cdot 607$	.....	$17 \cdot 113$	$3^3 \cdot 73$	$43 \cdot 47$	$19 \cdot 109$
22	72	$2 \cdot 911$	$2^4 \cdot 3^2 \cdot 13$	$2 \cdot 31^2$	$2^2 \cdot 17 \cdot 29$	$2 \cdot 3 \cdot 337$	$2^3 \cdot 7 \cdot 37$
23	73	.....	.....	$3 \cdot 641$	.....	$7 \cdot 17^2$	$3 \cdot 691$
24	74	$2^5 \cdot 3 \cdot 19$	$2 \cdot 937$	$2^2 \cdot 13 \cdot 37$	$2 \cdot 3 \cdot 7 \cdot 47$	$2^3 \cdot 11 \cdot 23$	$2 \cdot 17 \cdot 61$
25	75	$5^2 \cdot 73$	$3 \cdot 5^4$	$5^2 \cdot 7 \cdot 11$	$5^2 \cdot 79$	$3^4 \cdot 5^2$	$5^2 \cdot 83$
26	76	$2 \cdot 11 \cdot 83$	$2^2 \cdot 7 \cdot 67$	$2 \cdot 3^2 \cdot 107$	$2^3 \cdot 13 \cdot 19$	$2 \cdot 1013$	$2^2 \cdot 3 \cdot 173$
27	77	$3^2 \cdot 7 \cdot 29$	.....	$41 \cdot 47$	$3 \cdot 659$	.....	$31 \cdot 67$
28	78	$2^2 \cdot 457$	$2 \cdot 3 \cdot 313$	$2^3 \cdot 241$	$2 \cdot 23 \cdot 43$	$2^2 \cdot 3 \cdot 13^2$	$2 \cdot 1039$
29	79	$31 \cdot 59$	.....	$3 \cdot 643$	.....	.....	$3^3 \cdot 7 \cdot 11$
30	80	$2 \cdot 3 \cdot 5 \cdot 61$	$2^3 \cdot 5 \cdot 47$	$2 \cdot 5 \cdot 193$	$2^2 \cdot 3^2 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 7 \cdot 29$	$2^5 \cdot 5 \cdot 13$
31	81	.....	$3^2 \cdot 11 \cdot 19$	.....	$7 \cdot 283$	$3 \cdot 677$	.....
32	82	$2^3 \cdot 229$	$2 \cdot 941$	$2^2 \cdot 3 \cdot 7 \cdot 23$	$2 \cdot 991$	$2^4 \cdot 127$	$2 \cdot 3 \cdot 347$
33	83	$3 \cdot 13 \cdot 47$	$7 \cdot 269$	.....	$3 \cdot 661$	$19 \cdot 107$	.....
34	84	$2 \cdot 7 \cdot 131$	$2^2 \cdot 3 \cdot 157$	$2 \cdot 967$	$2^6 \cdot 31$	$2 \cdot 3^2 \cdot 113$	$2^2 \cdot 521$
35	85	$5 \cdot 367$	$5 \cdot 13 \cdot 29$	$3^2 \cdot 5 \cdot 43$	$5 \cdot 397$	$5 \cdot 11 \cdot 37$	$3 \cdot 5 \cdot 139$
36	86	$2^2 \cdot 3^3 \cdot 17$	$2 \cdot 23 \cdot 41$	$2^4 \cdot 11^2$	$2 \cdot 3 \cdot 331$	$2^2 \cdot 509$	$2 \cdot 7 \cdot 149$
37	87	$11 \cdot 167$	$3 \cdot 17 \cdot 37$	$13 \cdot 149$	.....	$3 \cdot 7 \cdot 97$	.....
38	88	$2 \cdot 919$	$2^5 \cdot 59$	$2 \cdot 3 \cdot 17 \cdot 19$	$2^2 \cdot 7 \cdot 71$	$2 \cdot 1019$	$2^3 \cdot 3^2 \cdot 29$
39	89	$3 \cdot 613$	.....	$7 \cdot 277$	$3^2 \cdot 13 \cdot 17$	.....	.....
40	90	$2^4 \cdot 5 \cdot 23$	$2 \cdot 3^3 \cdot 5 \cdot 7$	$2^2 \cdot 5 \cdot 97$	$2 \cdot 5 \cdot 199$	$2^3 \cdot 3 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 11 \cdot 19$
41	91	$7 \cdot 263$	$31 \cdot 61$	$3 \cdot 647$	$11 \cdot 181$	$13 \cdot 157$	$3 \cdot 17 \cdot 41$
42	92	$2 \cdot 3 \cdot 307$	$2^2 \cdot 11 \cdot 43$	$2 \cdot 971$	$2^3 \cdot 3 \cdot 83$	$2 \cdot 1021$	$2^2 \cdot 523$
43	93	$19 \cdot 97$	$3 \cdot 631$	$29 \cdot 67$	.....	$3^2 \cdot 227$	$7 \cdot 13 \cdot 23$
44	94	$2^2 \cdot 461$	$2 \cdot 947$	$2^3 \cdot 3^5$	$2 \cdot 997$	$2^2 \cdot 7 \cdot 73$	$2 \cdot 3 \cdot 349$
45	95	$3^2 \cdot 5 \cdot 41$	$5 \cdot 379$	$5 \cdot 389$	$3 \cdot 5 \cdot 7 \cdot 19$	$5 \cdot 409$	$5 \cdot 419$
46	96	$2 \cdot 13 \cdot 71$	$2^3 \cdot 3 \cdot 79$	$2 \cdot 7 \cdot 139$	$2^2 \cdot 499$	$2 \cdot 3 \cdot 11 \cdot 31$	$2^4 \cdot 131$
47	97	.....	$7 \cdot 271$	$3 \cdot 11 \cdot 59$	.....	$23 \cdot 89$	$3^2 \cdot 233$
48	98	$2^3 \cdot 3 \cdot 7 \cdot 11$	$2 \cdot 13 \cdot 73$	$2^2 \cdot 487$	$2 \cdot 3^3 \cdot 37$	2^{11}	$2 \cdot 1049$
49	99	43^2	$3^2 \cdot 211$	.....	.....	$3 \cdot 683$	.....
50	100	$2 \cdot 5^2 \cdot 37$	$2^2 \cdot 5^2 \cdot 19$	$2 \cdot 3 \cdot 5^2 \cdot 13$	$2^4 \cdot 5^3$	$2 \cdot 5^2 \cdot 41$	$2^2 \cdot 3 \cdot 5^2 \cdot 7$

Prime Numbers and Factors, 2100–2400.

From	To	2100	2150	2200	2250	2300	2350
		2150	2200	2250	2300	2350	2400
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 43$	$2^3 \cdot 5^2 \cdot 11$	$2 \cdot 3^2 \cdot 5^3$	$2^2 \cdot 5^2 \cdot 23$	$2 \cdot 5^2 \cdot 47$
1	51	$11 \cdot 191$	$3^2 \cdot 239$	$31 \cdot 71$	.....	$3 \cdot 13 \cdot 59$	.....
2	52	$2 \cdot 1051$	$2^3 \cdot 269$	$2 \cdot 3 \cdot 367$	$2^2 \cdot 563$	$2 \cdot 1151$	$2^4 \cdot 3 \cdot 7^2$
3	53	$3 \cdot 701$	.....	.....	$3 \cdot 751$	$7^2 \cdot 57$	$13 \cdot 181$
4	54	$2^3 \cdot 263$	$2 \cdot 3 \cdot 359$	$2^2 \cdot 19 \cdot 29$	$2 \cdot 7^2 \cdot 23$	$2^8 \cdot 3^2$	$2 \cdot 11 \cdot 107$
5	55	$5 \cdot 421$	$5 \cdot 431$	$3^2 \cdot 5 \cdot 7^2$	$5 \cdot 11 \cdot 41$	$5 \cdot 461$	$3 \cdot 5 \cdot 157$
6	56	$2 \cdot 3^4 \cdot 13$	$2^2 \cdot 7^2 \cdot 11$	$2 \cdot 1103$	$2^4 \cdot 3 \cdot 47$	$2 \cdot 1153$	$2^2 \cdot 19 \cdot 31$
7	57	$7^2 \cdot 43$	$3 \cdot 719$	.....	$37 \cdot 61$	$3 \cdot 769$	.....
8	58	$2^2 \cdot 17 \cdot 31$	$2 \cdot 13 \cdot 83$	$2^5 \cdot 3 \cdot 23$	$2 \cdot 1129$	$2^2 \cdot 577$	$2 \cdot 3^2 \cdot 131$
9	59	$3 \cdot 19 \cdot 37$	$17 \cdot 127$	47^2	$3^2 \cdot 251$	.....	$7 \cdot 337$
10	60	$2 \cdot 5 \cdot 211$	$2^4 \cdot 3^3 \cdot 5$	$2 \cdot 5 \cdot 13 \cdot 17$	$2^2 \cdot 5 \cdot 113$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 11$	$2^3 \cdot 5 \cdot 59$
11	61	.....	.....	$3 \cdot 11 \cdot 67$	$7 \cdot 17 \cdot 19$	.....	$3 \cdot 787$
12	62	$2^6 \cdot 3 \cdot 11$	$2 \cdot 23 \cdot 47$	$2^2 \cdot 7 \cdot 79$	$2 \cdot 3 \cdot 13 \cdot 29$	$2^3 \cdot 17^2$	$2 \cdot 1181$
13	63	.....	$3 \cdot 7 \cdot 103$	.....	$31 \cdot 73$	$3^2 \cdot 257$	$17 \cdot 139$
14	64	$2 \cdot 7 \cdot 151$	$2^2 \cdot 541$	$2 \cdot 3^3 \cdot 41$	$2^3 \cdot 283$	$2 \cdot 13 \cdot 89$	$2^2 \cdot 3 \cdot 197$
15	65	$3^2 \cdot 5 \cdot 47$	$5 \cdot 433$	$5 \cdot 443$	$3 \cdot 5 \cdot 151$	$5 \cdot 463$	$5 \cdot 11 \cdot 43$
16	66	$2^2 \cdot 23^2$	$2 \cdot 3 \cdot 19^2$	$2^3 \cdot 277$	$2 \cdot 11 \cdot 103$	$2^2 \cdot 3 \cdot 193$	$2 \cdot 7 \cdot 13^2$
17	67	$29 \cdot 73$	$11 \cdot 197$	$3 \cdot 739$	.....	$7 \cdot 331$	$3^2 \cdot 263$
18	68	$2 \cdot 3 \cdot 353$	$2^3 \cdot 271$	$2 \cdot 1109$	$2^2 \cdot 3^4 \cdot 7$	$2 \cdot 19 \cdot 61$	$2^6 \cdot 37$
19	69	$13 \cdot 163$	$3^2 \cdot 241$	$7 \cdot 317$	.....	$3 \cdot 773$	$23 \cdot 103$
20	70	$2^3 \cdot 5 \cdot 53$	$2 \cdot 5 \cdot 7 \cdot 31$	$2^2 \cdot 3 \cdot 5 \cdot 37$	$2 \cdot 5 \cdot 227$	$2^4 \cdot 5 \cdot 29$	$2 \cdot 3 \cdot 5 \cdot 79$
21	71	$3 \cdot 7 \cdot 101$	$13 \cdot 167$	.....	$3 \cdot 757$	$11 \cdot 211$	.....
22	72	$2 \cdot 1061$	$2^2 \cdot 3 \cdot 181$	$2 \cdot 11 \cdot 101$	$2^5 \cdot 71$	$2 \cdot 3^3 \cdot 43$	$2^2 \cdot 593$
23	73	$11 \cdot 193$	$41 \cdot 53$	$3^2 \cdot 13 \cdot 19$	.....	$23 \cdot 101$	$3 \cdot 7 \cdot 113$
24	74	$2^2 \cdot 3^2 \cdot 59$	$2 \cdot 1087$	$2^4 \cdot 139$	$2 \cdot 3 \cdot 379$	$2^2 \cdot 7 \cdot 83$	$2 \cdot 1187$
25	75	$5^3 \cdot 17$	$3 \cdot 5^2 \cdot 29$	$5^2 \cdot 89$	$5^2 \cdot 7 \cdot 13$	$3 \cdot 5^2 \cdot 31$	$5^3 \cdot 19$
26	76	$2 \cdot 1063$	$2^7 \cdot 17$	$2 \cdot 3 \cdot 7 \cdot 53$	$2^2 \cdot 569$	$2 \cdot 1163$	$2^3 \cdot 3^3 \cdot 11$
27	77	$3 \cdot 709$	$7 \cdot 311$	$17 \cdot 131$	$3^2 \cdot 11 \cdot 23$	$13 \cdot 179$	.....
28	78	$2^4 \cdot 7 \cdot 19$	$2 \cdot 3^2 \cdot 11^2$	$2^2 \cdot 557$	$2 \cdot 17 \cdot 67$	$2^3 \cdot 3 \cdot 97$	$2 \cdot 29 \cdot 41$
29	79	.....	.....	$3 \cdot 743$	$43 \cdot 53$	$17 \cdot 137$	$3 \cdot 13 \cdot 61$
30	80	$2 \cdot 3 \cdot 5 \cdot 71$	$2^2 \cdot 5 \cdot 109$	$2 \cdot 5 \cdot 223$	$2^3 \cdot 3 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 233$	$2^2 \cdot 5 \cdot 7 \cdot 17$
31	81	.....	$3 \cdot 727$	$23 \cdot 97$	.....	$3^2 \cdot 7 \cdot 37$	.....
32	82	$2^2 \cdot 13 \cdot 41$	$2 \cdot 1091$	$2^3 \cdot 3^2 \cdot 31$	$2 \cdot 7 \cdot 163$	$2^2 \cdot 11 \cdot 53$	$2 \cdot 3 \cdot 397$
33	83	$3^3 \cdot 79$	$37 \cdot 59$	$7 \cdot 11 \cdot 29$	$3 \cdot 761$	.....	.....
34	84	$2 \cdot 11 \cdot 97$	$2^3 \cdot 3 \cdot 7 \cdot 13$	$2 \cdot 1117$	$2^2 \cdot 571$	$2 \cdot 3 \cdot 389$	$2^4 \cdot 149$
35	85	$5 \cdot 7 \cdot 61$	$5 \cdot 19 \cdot 23$	$3 \cdot 5 \cdot 149$	$5 \cdot 457$	$5 \cdot 467$	$3^2 \cdot 5 \cdot 53$
36	86	$2^3 \cdot 3 \cdot 89$	$2 \cdot 1093$	$2^2 \cdot 13 \cdot 43$	$2 \cdot 3^2 \cdot 127$	$2^5 \cdot 73$	$2 \cdot 1193$
37	87	....	3^7	.....	.....	$3 \cdot 19 \cdot 41$	$7 \cdot 11 \cdot 31$
38	88	$2 \cdot 1069$	$2^2 \cdot 547$	$2 \cdot 3 \cdot 373$	$2^4 \cdot 11 \cdot 13$	$2 \cdot 7 \cdot 167$	$2^2 \cdot 3 \cdot 199$
39	89	$3 \cdot 23 \cdot 31$	$11 \cdot 199$	.....	$3 \cdot 7 \cdot 109$	.....	.....
40	90	$2^2 \cdot 5 \cdot 107$	$2 \cdot 3 \cdot 5 \cdot 73$	$2^6 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 229$	$2^2 \cdot 3^2 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 239$
41	91	.....	$7 \cdot 313$	$3^3 \cdot 83$	$29 \cdot 79$	.....	$3 \cdot 797$
42	92	$2 \cdot 3^2 \cdot 7 \cdot 17$	$2^4 \cdot 137$	$2 \cdot 19 \cdot 59$	$2^2 \cdot 3 \cdot 191$	$2 \cdot 1171$	$2^3 \cdot 13 \cdot 23$
43	93	.....	$3 \cdot 17 \cdot 43$	.....	.....	$3 \cdot 11 \cdot 71$	.....
44	94	$2^5 \cdot 67$	$2 \cdot 1097$	$2^2 \cdot 3 \cdot 11 \cdot 17$	$2 \cdot 31 \cdot 37$	$2^3 \cdot 293$	$2 \cdot 3^2 \cdot 7 \cdot 19$
45	95	$3 \cdot 5 \cdot 11 \cdot 13$	$5 \cdot 439$	$5 \cdot 449$	$3^3 \cdot 5 \cdot 17$	$5 \cdot 7 \cdot 67$	$5 \cdot 479$
46	96	$2 \cdot 29 \cdot 37$	$2^2 \cdot 3^2 \cdot 61$	$2 \cdot 1123$	$2^3 \cdot 7 \cdot 41$	$2 \cdot 3 \cdot 17 \cdot 23$	$2^2 \cdot 599$
47	97	$19 \cdot 113$	13^3	$3 \cdot 7 \cdot 107$	.....	.....	$3 \cdot 17 \cdot 47$
48	98	$2^2 \cdot 3 \cdot 179$	$2 \cdot 7 \cdot 151$	$2^3 \cdot 281$	$2 \cdot 3 \cdot 383$	$2^2 \cdot 587$	$2 \cdot 11 \cdot 109$
49	99	$7 \cdot 307$	$3 \cdot 733$	$13 \cdot 173$	$11^2 \cdot 19$	$3^4 \cdot 29$	.....
50	100	$2 \cdot 5^2 \cdot 43$	$2^3 \cdot 5^2 \cdot 11$	$2 \cdot 3^2 \cdot 5^3$	$2^2 \cdot 5^2 \cdot 23$	$2 \cdot 5^2 \cdot 47$	$2^5 \cdot 3 \cdot 5^2$

Prime Numbers and Factors, 2400–2700.

From	To	2400	2450	2500	2550	2600	2650
		2450	2500	2550	2600	2650	2700
0	50	$2^5 \cdot 3 \cdot 5^2$	$2 \cdot 5^2 \cdot 7^2$	$2^2 \cdot 5^4$	$2 \cdot 3 \cdot 5^2 \cdot 17$	$2^3 \cdot 5^2 \cdot 13$	$2 \cdot 5^2 \cdot 53$
1	51	7^4	$3 \cdot 19 \cdot 43$	$41 \cdot 61$	.....	$3^2 \cdot 17^2$	$11 \cdot 241$
2	52	$2 \cdot 1201$	$2^2 \cdot 613$	$2 \cdot 3^2 \cdot 139$	$2^3 \cdot 11 \cdot 29$	$2 \cdot 1301$	$2^2 \cdot 3 \cdot 13 \cdot 17$
3	53	$3^3 \cdot 89$	$11 \cdot 223$	.....	$3 \cdot 23 \cdot 37$	$19 \cdot 137$	$7 \cdot 379$
4	54	$2^2 \cdot 601$	$2 \cdot 3 \cdot 409$	$2^3 \cdot 313$	$2 \cdot 1277$	$2^2 \cdot 3 \cdot 7 \cdot 31$	$2 \cdot 1327$
5	55	$5 \cdot 13 \cdot 37$	$5 \cdot 491$	$3 \cdot 5 \cdot 167$	$5 \cdot 7 \cdot 73$	$5 \cdot 521$	$3^2 \cdot 5 \cdot 59$
6	56	$2 \cdot 3 \cdot 401$	$2^3 \cdot 307$	$2 \cdot 7 \cdot 179$	$2^2 \cdot 3^2 \cdot 71$	$2 \cdot 1303$	$2^5 \cdot 83$
7	57	$29 \cdot 83$	$3^3 \cdot 7 \cdot 13$	$23 \cdot 109$	.....	$3 \cdot 11 \cdot 79$	.....
8	58	$2^3 \cdot 7 \cdot 43$	$2 \cdot 1229$	$2^2 \cdot 3 \cdot 11 \cdot 19$	$2 \cdot 1279$	$2^4 \cdot 163$	$2 \cdot 3 \cdot 443$
9	59	$3 \cdot 11 \cdot 73$	.....	$13 \cdot 193$	$3 \cdot 853$	.....	.....
10	60	$2 \cdot 5 \cdot 241$	$2^2 \cdot 3 \cdot 5 \cdot 41$	$2 \cdot 5 \cdot 251$	$2^9 \cdot 5$	$2 \cdot 3^2 \cdot 5 \cdot 29$	$2^2 \cdot 5 \cdot 7 \cdot 19$
11	61	.....	$23 \cdot 107$	$3^4 \cdot 31$	$13 \cdot 197$	$7 \cdot 373$	$3 \cdot 887$
12	62	$2^2 \cdot 3^2 \cdot 67$	$2 \cdot 1231$	$2^4 \cdot 157$	$2 \cdot 3 \cdot 7 \cdot 61$	$2^2 \cdot 653$	$2 \cdot 11^3$
13	63	$19 \cdot 127$	$3 \cdot 821$	$7 \cdot 359$	$11 \cdot 233$	$3 \cdot 13 \cdot 67$	.....
14	64	$2 \cdot 17 \cdot 71$	$2^5 \cdot 7 \cdot 11$	$2 \cdot 3 \cdot 419$	$2^2 \cdot 641$	$2 \cdot 1307$	$2^3 \cdot 3^2 \cdot 37$
15	65	$3 \cdot 5 \cdot 7 \cdot 23$	$5 \cdot 17 \cdot 29$	$5 \cdot 503$	$3^3 \cdot 5 \cdot 19$	$5 \cdot 523$	$5 \cdot 13 \cdot 41$
16	66	$2^4 \cdot 151$	$2 \cdot 3^2 \cdot 137$	$2^2 \cdot 17 \cdot 37$	$2 \cdot 1283$	$2^3 \cdot 3 \cdot 109$	$2 \cdot 31 \cdot 43$
17	67	.....	.....	$3 \cdot 839$	$17 \cdot 151$	.....	$3 \cdot 7 \cdot 127$
18	68	$2 \cdot 3 \cdot 13 \cdot 31$	$2^2 \cdot 617$	$2 \cdot 1259$	$2^3 \cdot 3 \cdot 107$	$2 \cdot 7 \cdot 11 \cdot 17$	$2^2 \cdot 23 \cdot 29$
19	69	$41 \cdot 59$	$3 \cdot 823$	$11 \cdot 229$	$7 \cdot 367$	$3^3 \cdot 97$	$17 \cdot 157$
20	70	$2^2 \cdot 5 \cdot 11^2$	$2 \cdot 5 \cdot 13 \cdot 19$	$2^3 \cdot 3^2 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 257$	$2^2 \cdot 5 \cdot 131$	$2 \cdot 3 \cdot 5 \cdot 89$
21	71	$3^2 \cdot 269$	$7 \cdot 353$	.....	$3 \cdot 857$	.....	.....
22	72	$2 \cdot 7 \cdot 173$	$2^3 \cdot 3 \cdot 103$	$2 \cdot 13 \cdot 97$	$2^2 \cdot 643$	$2 \cdot 3 \cdot 19 \cdot 23$	$2^4 \cdot 167$
23	73	.....	.....	$3 \cdot 29^2$	$31 \cdot 83$	$43 \cdot 61$	$3^5 \cdot 11$
24	74	$2^3 \cdot 3 \cdot 101$	$2 \cdot 1237$	$2^2 \cdot 631$	$2 \cdot 3^2 \cdot 11 \cdot 13$	$2^6 \cdot 41$	$2 \cdot 7 \cdot 191$
25	75	$5^2 \cdot 97$	$3^2 \cdot 5^2 \cdot 11$	$5^2 \cdot 101$	$5^2 \cdot 103$	$3 \cdot 5^3 \cdot 7$	$5^2 \cdot 107$
26	76	$2 \cdot 1213$	$2^2 \cdot 619$	$2 \cdot 3 \cdot 421$	$2^4 \cdot 7 \cdot 23$	$2 \cdot 13 \cdot 101$	$2^2 \cdot 3 \cdot 223$
27	77	$3 \cdot 809$	.....	$7 \cdot 19^2$	$3 \cdot 859$	$37 \cdot 71$	.....
28	78	$2^2 \cdot 607$	$2 \cdot 3 \cdot 7 \cdot 59$	$2^5 \cdot 79$	$2 \cdot 1289$	$2^2 \cdot 3^2 \cdot 73$	$2 \cdot 13 \cdot 103$
29	79	$7 \cdot 347$	$37 \cdot 67$	$3^2 \cdot 281$	.....	$11 \cdot 239$	$3 \cdot 19 \cdot 47$
30	80	$2 \cdot 3^5 \cdot 5$	$2^4 \cdot 5 \cdot 31$	$2 \cdot 5 \cdot 11 \cdot 23$	$2^2 \cdot 3 \cdot 5 \cdot 43$	$2 \cdot 5 \cdot 263$	$2^3 \cdot 5 \cdot 67$
31	81	$11 \cdot 13 \cdot 17$	$3 \cdot 827$	.....	$29 \cdot 89$	$3 \cdot 877$	$7 \cdot 383$
32	82	$2^7 \cdot 19$	$2 \cdot 17 \cdot 73$	$2^2 \cdot 3 \cdot 211$	$2 \cdot 1291$	$2^3 \cdot 7 \cdot 47$	$2 \cdot 3^2 \cdot 149$
33	83	$3 \cdot 811$	$13 \cdot 191$	$17 \cdot 149$	$3^2 \cdot 7 \cdot 41$	.....	.....
34	84	$2 \cdot 1217$	$2^2 \cdot 3^3 \cdot 23$	$2 \cdot 7 \cdot 181$	$2^3 \cdot 17 \cdot 19$	$2 \cdot 3 \cdot 439$	$2^2 \cdot 11 \cdot 61$
35	85	$5 \cdot 487$	$5 \cdot 7 \cdot 71$	$3 \cdot 5 \cdot 13^2$	$5 \cdot 11 \cdot 47$	$5 \cdot 17 \cdot 31$	$3 \cdot 5 \cdot 179$
36	86	$2^2 \cdot 3 \cdot 7 \cdot 29$	$2 \cdot 11 \cdot 113$	$2^3 \cdot 317$	$2 \cdot 3 \cdot 431$	$2^2 \cdot 659$	$2 \cdot 17 \cdot 79$
37	87	.....	$3 \cdot 829$	$43 \cdot 59$	$13 \cdot 199$	$3^2 \cdot 293$	.....
38	88	$2 \cdot 23 \cdot 53$	$2^3 \cdot 311$	$2 \cdot 3^3 \cdot 47$	$2^2 \cdot 647$	$2 \cdot 1319$	$2^7 \cdot 3 \cdot 7$
39	89	$3^2 \cdot 271$	$19 \cdot 131$	.....	$3 \cdot 863$	$7 \cdot 13 \cdot 29$	.....
40	90	$2^3 \cdot 5 \cdot 61$	$2 \cdot 3 \cdot 5 \cdot 83$	$2^2 \cdot 5 \cdot 127$	$2 \cdot 5 \cdot 7 \cdot 37$	$2^4 \cdot 3 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 269$
41	91	.....	$47 \cdot 53$	$3 \cdot 7 \cdot 11^2$	.....	$19 \cdot 139$	$3^2 \cdot 13 \cdot 23$
42	92	$2 \cdot 3 \cdot 11 \cdot 37$	$2^2 \cdot 7 \cdot 89$	$2 \cdot 31 \cdot 41$	$2^5 \cdot 3^4$	$2 \cdot 1321$	$2^2 \cdot 673$
43	93	$7 \cdot 349$	$3^2 \cdot 277$	.....	.....	$3 \cdot 881$	.....
44	94	$2^2 \cdot 13 \cdot 47$	$2 \cdot 29 \cdot 43$	$2^4 \cdot 3 \cdot 53$	$2 \cdot 1297$	$2^2 \cdot 661$	$2 \cdot 3 \cdot 449$
45	95	$3 \cdot 5 \cdot 163$	$5 \cdot 499$	$5 \cdot 509$	$3 \cdot 5 \cdot 173$	$5 \cdot 23^2$	$5 \cdot 7^2 \cdot 11$
46	96	$2 \cdot 1223$	$2^6 \cdot 3 \cdot 13$	$2 \cdot 19 \cdot 67$	$2^2 \cdot 11 \cdot 59$	$2 \cdot 3^3 \cdot 7^2$	$2^3 \cdot 337$
47	97	.....	$11 \cdot 227$	$3^2 \cdot 283$	$7^2 \cdot 53$	.....	$3 \cdot 29 \cdot 31$
48	98	$2^4 \cdot 3^2 \cdot 17$	$2 \cdot 1249$	$2^2 \cdot 7^2 \cdot 13$	$2 \cdot 3 \cdot 433$	$2^3 \cdot 331$	$2 \cdot 19 \cdot 71$
49	99	$31 \cdot 79$	$3 \cdot 7^2 \cdot 17$	.....	$23 \cdot 113$	$3 \cdot 883$	.....
50	100	$2 \cdot 5^2 \cdot 7^2$	$2^2 \cdot 5^4$	$2 \cdot 3 \cdot 5^2 \cdot 17$	$2^3 \cdot 5^2 \cdot 13$	$2 \cdot 5^2 \cdot 53$	$2^2 \cdot 3^3 \cdot 5^2$

Prime Numbers and Factors, 2700–3000.

From	To	2700	2750	2800	2850	2900	2950
		2750	2800	2850	2900	2950	3000
0	50	$2^2 \cdot 3^3 \cdot 5^2$	$2 \cdot 5^3 \cdot 11$	$2^4 \cdot 5^2 \cdot 7$	$2 \cdot 3 \cdot 5^2 \cdot 19$	$2^2 \cdot 5^2 \cdot 29$	$2 \cdot 5^2 \cdot 59$
1	51	$37 \cdot 73$	$3 \cdot 7 \cdot 131$	.....	.....	$3 \cdot 967$	$13 \cdot 227$
2	52	$2 \cdot 7 \cdot 193$	$2^6 \cdot 43$	$2 \cdot 3 \cdot 467$	$2^2 \cdot 23 \cdot 31$	$2 \cdot 1451$	$2^3 \cdot 3^2 \cdot 41$
3	53	$3 \cdot 17 \cdot 53$	.....	.....	$3^2 \cdot 317$	.....	.....
4	54	$2^4 \cdot 13^2$	$2 \cdot 3^4 \cdot 17$	$2^2 \cdot 701$	$2 \cdot 1427$	$2^3 \cdot 3 \cdot 11^2$	$2 \cdot 7 \cdot 211$
5	55	$5 \cdot 541$	$5 \cdot 19 \cdot 29$	$3 \cdot 5 \cdot 11 \cdot 17$	$5 \cdot 571$	$5 \cdot 7 \cdot 83$	$3 \cdot 5 \cdot 197$
6	56	$2 \cdot 3 \cdot 11 \cdot 41$	$2^2 \cdot 13 \cdot 53$	$2 \cdot 23 \cdot 61$	$2^3 \cdot 3 \cdot 7 \cdot 17$	$2 \cdot 1453$	$2^2 \cdot 739$
7	57	.....	$3 \cdot 919$	$7 \cdot 401$	.....	$3^2 \cdot 17 \cdot 19$	.....
8	58	$2^2 \cdot 677$	$2 \cdot 7 \cdot 197$	$2^3 \cdot 3^3 \cdot 13$	$2 \cdot 1429$	$2^2 \cdot 727$	$2 \cdot 3 \cdot 17 \cdot 29$
9	59	$3^2 \cdot 7 \cdot 43$	$31 \cdot 89$	53^2	$3 \cdot 953$	.....	$11 \cdot 269$
10	60	$2 \cdot 5 \cdot 271$	$2^3 \cdot 3 \cdot 5 \cdot 23$	$2 \cdot 5 \cdot 281$	$2^2 \cdot 5 \cdot 11 \cdot 13$	$2 \cdot 3 \cdot 5 \cdot 97$	$2^4 \cdot 5 \cdot 37$
11	61	.....	$11 \cdot 251$	$3 \cdot 937$	.....	$41 \cdot 71$	$3^2 \cdot 7 \cdot 47$
12	62	$2^3 \cdot 3 \cdot 113$	$2 \cdot 1381$	$2^2 \cdot 19 \cdot 37$	$2 \cdot 3^3 \cdot 53$	$2^5 \cdot 7 \cdot 13$	$2 \cdot 1481$
13	63	.....	$3^2 \cdot 307$	$29 \cdot 97$	$7 \cdot 409$	$3 \cdot 971$	....
14	64	$2 \cdot 23 \cdot 59$	$2^2 \cdot 691$	$2 \cdot 3 \cdot 7 \cdot 67$	$2^4 \cdot 179$	$2 \cdot 31 \cdot 47$	$2^2 \cdot 3 \cdot 13 \cdot 19$
15	65	$3 \cdot 5 \cdot 181$	$5 \cdot 7 \cdot 79$	$5 \cdot 563$	$3 \cdot 5 \cdot 191$	$5 \cdot 11 \cdot 53$	$5 \cdot 593$
16	66	$2^2 \cdot 7 \cdot 97$	$2 \cdot 3 \cdot 461$	$2^8 \cdot 11$	$2 \cdot 1433$	$2^2 \cdot 3^6$	$2 \cdot 1483$
17	67	$11 \cdot 13 \cdot 19$	.....	$3^2 \cdot 313$	$47 \cdot 61$	.....	$3 \cdot 23 \cdot 43$
18	68	$2 \cdot 3^2 \cdot 151$	$2^4 \cdot 173$	$2 \cdot 1409$	$2^2 \cdot 3 \cdot 239$	$2 \cdot 1459$	$2^3 \cdot 7 \cdot 53$
19	69	.....	$3 \cdot 13 \cdot 71$	.....	$19 \cdot 151$	$3 \cdot 7 \cdot 139$	....
20	70	$2^5 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 277$	$2^2 \cdot 3 \cdot 5 \cdot 47$	$2 \cdot 5 \cdot 7 \cdot 41$	$2^3 \cdot 5 \cdot 73$	$2 \cdot 3^3 \cdot 5 \cdot 11$
21	71	$3 \cdot 907$	$17 \cdot 163$	$7 \cdot 13 \cdot 31$	$3^2 \cdot 11 \cdot 29$	$23 \cdot 127$	.....
22	72	$2 \cdot 1361$	$2^2 \cdot 3^2 \cdot 7 \cdot 11$	$2 \cdot 17 \cdot 83$	$2^3 \cdot 359$	$2 \cdot 3 \cdot 487$	$2^2 \cdot 743$
23	73	$7 \cdot 389$	$47 \cdot 59$	$3 \cdot 941$	$13^2 \cdot 17$	$37 \cdot 79$	$3 \cdot 991$
24	74	$2^2 \cdot 3 \cdot 227$	$2 \cdot 19 \cdot 73$	$2^3 \cdot 353$	$2 \cdot 3 \cdot 479$	$2^2 \cdot 17 \cdot 43$	$2 \cdot 1487$
25	75	$5^2 \cdot 109$	$3 \cdot 5^2 \cdot 37$	$5^2 \cdot 113$	$5^3 \cdot 23$	$3^2 \cdot 5^2 \cdot 13$	$5^2 \cdot 7 \cdot 17$
26	76	$2 \cdot 29 \cdot 47$	$2^3 \cdot 347$	$2 \cdot 3^2 \cdot 157$	$2^2 \cdot 719$	$2 \cdot 7 \cdot 11 \cdot 19$	$2^5 \cdot 3 \cdot 31$
27	77	$3^3 \cdot 101$	.....	$11 \cdot 257$	$3 \cdot 7 \cdot 137$	.....	$13 \cdot 229$
28	78	$2^3 \cdot 11 \cdot 31$	$2 \cdot 3 \cdot 463$	$2^2 \cdot 7 \cdot 101$	$2 \cdot 1439$	$2^4 \cdot 3 \cdot 61$	$2 \cdot 1489$
29	79	.....	$7 \cdot 397$	$3 \cdot 23 \cdot 41$	.....	$29 \cdot 101$	$3^2 \cdot 331$
30	80	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 13$	$2^2 \cdot 5 \cdot 139$	$2 \cdot 5 \cdot 283$	$2^6 \cdot 3^2 \cdot 5$	$2 \cdot 5 \cdot 293$	$2^2 \cdot 5 \cdot 149$
31	81	.....	$3^3 \cdot 103$	$19 \cdot 149$	$43 \cdot 67$	$3 \cdot 977$	$11 \cdot 271$
32	82	$2^2 \cdot 683$	$2 \cdot 13 \cdot 107$	$2^4 \cdot 3 \cdot 59$	$2 \cdot 11 \cdot 131$	$2^2 \cdot 733$	$2 \cdot 3 \cdot 7 \cdot 71$
33	83	$3 \cdot 911$	$11^2 \cdot 23$	.....	$3 \cdot 31^2$	$7 \cdot 419$	$19 \cdot 157$
34	84	$2 \cdot 1367$	$2^5 \cdot 3 \cdot 29$	$2 \cdot 13 \cdot 109$	$2^2 \cdot 7 \cdot 103$	$2 \cdot 3^2 \cdot 163$	$2^3 \cdot 373$
35	85	$5 \cdot 547$	$5 \cdot 557$	$3^4 \cdot 5 \cdot 7$	$5 \cdot 577$	$5 \cdot 587$	$3 \cdot 5 \cdot 199$
36	86	$2^4 \cdot 3^2 \cdot 19$	$2 \cdot 7 \cdot 199$	$2^2 \cdot 709$	$2 \cdot 3 \cdot 13 \cdot 37$	$2^3 \cdot 367$	$2 \cdot 1493$
37	87	$7 \cdot 17 \cdot 23$	$3 \cdot 929$	.....	.....	$3 \cdot 11 \cdot 89$	$29 \cdot 103$
38	88	$2 \cdot 37^2$	$2^2 \cdot 17 \cdot 41$	$2 \cdot 3 \cdot 11 \cdot 43$	$2^3 \cdot 19^2$	$2 \cdot 13 \cdot 113$	$2^2 \cdot 3^2 \cdot 83$
39	89	$3 \cdot 11 \cdot 83$	.....	$17 \cdot 167$	$3^3 \cdot 107$	.....	$7^2 \cdot 61$
40	90	$2^2 \cdot 5 \cdot 137$	$2 \cdot 3^2 \cdot 5 \cdot 31$	$2^3 \cdot 5 \cdot 71$	$2 \cdot 5 \cdot 17^2$	$2^2 \cdot 3 \cdot 5 \cdot 7^2$	$2 \cdot 5 \cdot 13 \cdot 23$
41	91	.....	.....	$3 \cdot 947$	$7^2 \cdot 59$	$17 \cdot 173$	$3 \cdot 997$
42	92	$2 \cdot 3 \cdot 457$	$2^3 \cdot 349$	$2 \cdot 7^2 \cdot 29$	$2^2 \cdot 3 \cdot 241$	$2 \cdot 1471$	$2^4 \cdot 11 \cdot 17$
43	93	$13 \cdot 211$	$3 \cdot 7^2 \cdot 19$	.....	$11 \cdot 263$	$3^3 \cdot 109$	$41 \cdot 73$
44	94	$2^3 \cdot 7^3$	$2 \cdot 11 \cdot 127$	$2^2 \cdot 3^2 \cdot 79$	$2 \cdot 1447$	$2^7 \cdot 23$	$2 \cdot 3 \cdot 499$
45	95	$3^2 \cdot 5 \cdot 61$	$5 \cdot 13 \cdot 43$	$5 \cdot 569$	$3 \cdot 5 \cdot 193$	$5 \cdot 19 \cdot 31$	$5 \cdot 599$
46	96	$2 \cdot 1373$	$2^2 \cdot 3 \cdot 233$	$2 \cdot 1423$	$2^4 \cdot 181$	$2 \cdot 3 \cdot 491$	$2^2 \cdot 7 \cdot 107$
47	97	$41 \cdot 67$	.....	$3 \cdot 13 \cdot 73$	.....	$7 \cdot 421$	$3^4 \cdot 37$
48	98	$2^2 \cdot 3 \cdot 229$	$3 \cdot 1399$	$2^5 \cdot 89$	$2 \cdot 3^2 \cdot 7 \cdot 23$	$2^2 \cdot 11 \cdot 67$	$2 \cdot 1499$
49	99	.....	$3^2 \cdot 311$	$7 \cdot 11 \cdot 37$	$13 \cdot 223$	$3 \cdot 983$	.....
50	100	$2 \cdot 5^3 \cdot 11$	$2^4 \cdot 5^2 \cdot 7$	$2 \cdot 3 \cdot 5^2 \cdot 19$	$2^2 \cdot 5^2 \cdot 29$	$2 \cdot 5^2 \cdot 59$	$2^3 \cdot 3 \cdot 5^3$

Prime Numbers and Factors, 3000–3300.

From	To	3000	3050	3100	3150	3200	3250
		3050	3100	3150	3200	3250	3300
0	50	$2^3 \cdot 3 \cdot 5^3$	$2 \cdot 5^2 \cdot 61$	$2^2 \cdot 5^2 \cdot 31$	$2 \cdot 3^2 \cdot 5^2 \cdot 7$	$2^7 \cdot 5^2$	$2 \cdot 5^3 \cdot 13$
1	51	.....	$3^3 \cdot 113$	$7 \cdot 443$	$23 \cdot 137$	$3 \cdot 11 \cdot 97$	.....
2	52	$2 \cdot 19 \cdot 79$	$2^2 \cdot 7 \cdot 109$	$2 \cdot 3 \cdot 11 \cdot 47$	$2^4 \cdot 197$	$2 \cdot 1601$	$2^2 \cdot 3 \cdot 271$
3	53	$3 \cdot 7 \cdot 11 \cdot 13$	$43 \cdot 71$	$29 \cdot 107$	$3 \cdot 1051$	.....	.....
4	54	$2^2 \cdot 751$	$2 \cdot 3 \cdot 509$	$2^5 \cdot 97$	$2 \cdot 19 \cdot 83$	$2^2 \cdot 3^2 \cdot 89$	$2 \cdot 1627$
5	55	$5 \cdot 601$	$5 \cdot 13 \cdot 47$	$3^3 \cdot 5 \cdot 23$	$5 \cdot 631$	$5 \cdot 641$	$3 \cdot 5 \cdot 7 \cdot 31$
6	56	$2 \cdot 3^2 \cdot 167$	$2^4 \cdot 191$	$2 \cdot 1553$	$2^2 \cdot 3 \cdot 263$	$2 \cdot 7 \cdot 229$	$2^3 \cdot 11 \cdot 37$
7	57	$31 \cdot 97$	$3 \cdot 1019$	$13 \cdot 239$	$7 \cdot 11 \cdot 41$	$3 \cdot 1069$	.....
8	58	$2^6 \cdot 47$	$2 \cdot 11 \cdot 139$	$2^2 \cdot 3 \cdot 7 \cdot 37$	$2 \cdot 1579$	$2^3 \cdot 401$	$2 \cdot 3^2 \cdot 181$
9	59	$3 \cdot 17 \cdot 59$	$7 \cdot 19 \cdot 23$	.....	$3^5 \cdot 13$	.....	.....
10	60	$2 \cdot 5 \cdot 7 \cdot 43$	$2^2 \cdot 3^2 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 311$	$2^3 \cdot 5 \cdot 79$	$2 \cdot 3 \cdot 5 \cdot 107$	$2^2 \cdot 5 \cdot 163$
11	61	.....	.....	$3 \cdot 17 \cdot 61$	$29 \cdot 109$	$13^2 \cdot 19$	$3 \cdot 1087$
12	62	$2^2 \cdot 3 \cdot 251$	$2 \cdot 1531$	$2^3 \cdot 389$	$2 \cdot 3 \cdot 17 \cdot 31$	$2^2 \cdot 11 \cdot 73$	$2 \cdot 7 \cdot 233$
13	63	$23 \cdot 131$	$3 \cdot 1021$	$11 \cdot 283$	.....	$3^3 \cdot 7 \cdot 17$	$13 \cdot 251$
14	64	$2 \cdot 11 \cdot 137$	$2^3 \cdot 383$	$2 \cdot 3^2 \cdot 173$	$2^2 \cdot 7 \cdot 113$	$2 \cdot 1607$	$2^6 \cdot 3 \cdot 17$
15	65	$3^2 \cdot 5 \cdot 67$	$5 \cdot 613$	$5 \cdot 7 \cdot 89$	$3 \cdot 5 \cdot 211$	$5 \cdot 643$	$5 \cdot 653$
16	66	$2^3 \cdot 13 \cdot 29$	$2 \cdot 3 \cdot 7 \cdot 73$	$2^2 \cdot 19 \cdot 41$	$2 \cdot 1583$	$2^4 \cdot 3 \cdot 67$	$2 \cdot 23 \cdot 71$
17	67	$7 \cdot 431$	.....	$3 \cdot 1039$	.....	.....	$3^3 \cdot 11^2$
18	68	$2 \cdot 3 \cdot 503$	$2^2 \cdot 13 \cdot 59$	$2 \cdot 1559$	$2^5 \cdot 3^2 \cdot 11$	$2 \cdot 1609$	$2^2 \cdot 19 \cdot 43$
19	69	.....	$3^2 \cdot 11 \cdot 31$	.....	.....	$3 \cdot 29 \cdot 37$	$7 \cdot 467$
20	70	$2^2 \cdot 5 \cdot 151$	$2 \cdot 5 \cdot 307$	$2^4 \cdot 3 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 317$	$2^2 \cdot 5 \cdot 7 \cdot 23$	$2 \cdot 3 \cdot 5 \cdot 109$
21	71	$3 \cdot 19 \cdot 53$	$37 \cdot 83$	.....	$3 \cdot 7 \cdot 151$	.....	.....
22	72	$2 \cdot 1511$	$2^{10} \cdot 3$	$2 \cdot 7 \cdot 223$	$2^2 \cdot 13 \cdot 61$	$2 \cdot 3^2 \cdot 179$	$2^3 \cdot 409$
23	73	.....	$7 \cdot 439$	$3^2 \cdot 347$	$19 \cdot 167$	$11 \cdot 293$	$3 \cdot 1091$
24	74	$2^4 \cdot 3^3 \cdot 7$	$2 \cdot 29 \cdot 53$	$2^2 \cdot 11 \cdot 71$	$2 \cdot 3 \cdot 23^2$	$2^3 \cdot 13 \cdot 31$	$2 \cdot 1637$
25	75	$5^2 \cdot 11^2$	$3 \cdot 5^2 \cdot 41$	5^5	$5^2 \cdot 127$	$3 \cdot 5^2 \cdot 43$	$5^2 \cdot 131$
26	76	$2 \cdot 17 \cdot 89$	$2^2 \cdot 769$	$2 \cdot 3 \cdot 521$	$2^3 \cdot 397$	$2 \cdot 1613$	$2^2 \cdot 3^2 \cdot 7 \cdot 13$
27	77	$3 \cdot 1009$	$17 \cdot 181$	$53 \cdot 59$	$3^2 \cdot 353$	$7 \cdot 461$	$29 \cdot 113$
28	78	$2^2 \cdot 757$	$2 \cdot 3^4 \cdot 19$	$2^3 \cdot 17 \cdot 23$	$2 \cdot 7 \cdot 227$	$2^2 \cdot 3 \cdot 269$	$2 \cdot 11 \cdot 149$
29	79	$13 \cdot 233$	.....	$3 \cdot 7 \cdot 149$	$11 \cdot 17^2$	.....	$3 \cdot 1093$
30	80	$2 \cdot 3 \cdot 5 \cdot 101$	$2^3 \cdot 5 \cdot 7 \cdot 11$	$2 \cdot 5 \cdot 313$	$2^2 \cdot 3 \cdot 5 \cdot 53$	$2 \cdot 5 \cdot 17 \cdot 19$	$2^4 \cdot 5 \cdot 41$
31	81	$7 \cdot 433$	$3 \cdot 13 \cdot 79$	$31 \cdot 101$	.....	$3^2 \cdot 359$	$17 \cdot 193$
32	82	$2^3 \cdot 379$	$2 \cdot 23 \cdot 67$	$2^2 \cdot 3^3 \cdot 29$	$2 \cdot 37 \cdot 43$	$2^5 \cdot 101$	$2 \cdot 3 \cdot 547$
33	83	$3^2 \cdot 337$	.....	$13 \cdot 241$	$3 \cdot 1061$	$53 \cdot 61$	$7^2 \cdot 67$
34	84	$2 \cdot 37 \cdot 41$	$2^2 \cdot 3 \cdot 257$	$2 \cdot 1567$	$2^4 \cdot 199$	$2 \cdot 3 \cdot 7^2 \cdot 11$	$2^2 \cdot 821$
35	85	$5 \cdot 607$	$5 \cdot 617$	$3 \cdot 5 \cdot 11 \cdot 19$	$5 \cdot 7^2 \cdot 13$	$5 \cdot 647$	$3^2 \cdot 5 \cdot 73$
36	86	$2^2 \cdot 3 \cdot 11 \cdot 23$	$2 \cdot 1543$	$2^6 \cdot 7^2$	$2 \cdot 3^3 \cdot 59$	$2^2 \cdot 809$	$2 \cdot 31 \cdot 53$
37	87	.....	$3^2 \cdot 7^3$	.....	.....	$3 \cdot 13 \cdot 83$	$19 \cdot 173$
38	88	$2 \cdot 7^2 \cdot 31$	$2^4 \cdot 193$	$2 \cdot 3 \cdot 523$	$2^2 \cdot 797$	$2 \cdot 1619$	$2^3 \cdot 3 \cdot 137$
39	89	$3 \cdot 1013$	.....	$43 \cdot 73$	$3 \cdot 1063$	$41 \cdot 79$	$11 \cdot 13 \cdot 23$
40	90	$2^5 \cdot 5 \cdot 19$	$2 \cdot 3 \cdot 5 \cdot 103$	$2^2 \cdot 5 \cdot 157$	$2 \cdot 5 \cdot 11 \cdot 29$	$2^3 \cdot 3^4 \cdot 5$	$2 \cdot 5 \cdot 7 \cdot 47$
41	91	.....	$11 \cdot 281$	$3^2 \cdot 349$	.....	$7 \cdot 463$	$3 \cdot 1097$
42	92	$2 \cdot 3^2 \cdot 13^2$	$2^2 \cdot 773$	$2 \cdot 1571$	$2^3 \cdot 3 \cdot 7 \cdot 19$	$2 \cdot 1621$	$2^2 \cdot 823$
43	93	$17 \cdot 179$	$3 \cdot 1031$	$7 \cdot 449$	$31 \cdot 103$	$3 \cdot 23 \cdot 47$	$37 \cdot 89$
44	94	$2^2 \cdot 761$	$2 \cdot 7 \cdot 13 \cdot 17$	$2^3 \cdot 3 \cdot 131$	$2 \cdot 1597$	$2^2 \cdot 811$	$2 \cdot 3^3 \cdot 61$
45	95	$3 \cdot 5 \cdot 7 \cdot 29$	$5 \cdot 619$	$5 \cdot 17 \cdot 37$	$3^2 \cdot 5 \cdot 71$	$5 \cdot 11 \cdot 59$	$5 \cdot 659$
46	96	$2 \cdot 1523$	$2^3 \cdot 3^2 \cdot 43$	$2 \cdot 11^2 \cdot 13$	$2^2 \cdot 17 \cdot 47$	$2 \cdot 3 \cdot 541$	$2^5 \cdot 103$
47	97	$11 \cdot 277$	$19 \cdot 163$	$3 \cdot 1049$	$23 \cdot 139$	$17 \cdot 191$	$3 \cdot 7 \cdot 157$
48	98	$2^3 \cdot 3 \cdot 127$	$2 \cdot 1549$	$2^2 \cdot 787$	$2 \cdot 3 \cdot 13 \cdot 41$	$2^4 \cdot 7 \cdot 29$	$2 \cdot 17 \cdot 97$
49	99	.....	$3 \cdot 1033$	$47 \cdot 67$	$7 \cdot 457$	$3^2 \cdot 19^2$	.....
50	100	$2 \cdot 5^2 \cdot 61$	$2^2 \cdot 5^2 \cdot 31$	$2 \cdot 3^2 \cdot 5^2 \cdot 7$	$2^7 \cdot 5^2$	$2 \cdot 5^3 \cdot 13$	$2^2 \cdot 3 \cdot 5^2 \cdot 11$

Prime Numbers and Factors, 3300–3600.

From	To	3300	3350	3400	3450	3500	3550
		3350	3400	3450	3500	3550	3600
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 67$	$2^3 \cdot 5^2 \cdot 17$	$2 \cdot 3 \cdot 5^2 \cdot 23$	$2^2 \cdot 5^3 \cdot 7$	$2 \cdot 5^2 \cdot 71$
1	51	.....	$3 \cdot 1117$	$19 \cdot 179$	$7 \cdot 17 \cdot 29$	$3^2 \cdot 389$	$53 \cdot 67$
2	52	$2 \cdot 13 \cdot 127$	$2^3 \cdot 419$	$2 \cdot 3^5 \cdot 7$	$2^2 \cdot 863$	$2 \cdot 17 \cdot 103$	$2^5 \cdot 3 \cdot 37$
3	53	$3^2 \cdot 367$	$7 \cdot 479$	$41 \cdot 83$	$3 \cdot 1151$	$31 \cdot 113$	$11 \cdot 17 \cdot 19$
4	54	$2^3 \cdot 7 \cdot 59$	$2 \cdot 3 \cdot 13 \cdot 43$	$2^2 \cdot 23 \cdot 37$	$2 \cdot 11 \cdot 157$	$2^4 \cdot 3 \cdot 73$	$2 \cdot 1777$
5	55	$5 \cdot 661$	$5 \cdot 11 \cdot 61$	$3 \cdot 5 \cdot 227$	$5 \cdot 691$	$5 \cdot 701$	$3^2 \cdot 5 \cdot 79$
6	56	$2 \cdot 3 \cdot 19 \cdot 29$	$2^2 \cdot 839$	$2 \cdot 13 \cdot 131$	$2^7 \cdot 3^3$	$2 \cdot 1753$	$2^2 \cdot 7 \cdot 127$
7	57	.....	$3^2 \cdot 373$	.....	.....	$3 \cdot 7 \cdot 167$	.....
8	58	$2^2 \cdot 827$	$2 \cdot 23 \cdot 73$	$2^4 \cdot 3 \cdot 71$	$2 \cdot 7 \cdot 13 \cdot 19$	$2^2 \cdot 877$	$2 \cdot 3 \cdot 593$
9	59	$3 \cdot 1103$	.....	$7 \cdot 487$	$3 \cdot 1153$	$11^2 \cdot 29$	.....
10	60	$2 \cdot 5 \cdot 331$	$2^5 \cdot 3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 11 \cdot 31$	$2^2 \cdot 5 \cdot 173$	$2 \cdot 3^3 \cdot 5 \cdot 13$	$2^3 \cdot 5 \cdot 89$
11	61	$7 \cdot 11 \cdot 43$	.....	$3^2 \cdot 379$	.....	.....	$3 \cdot 1187$
12	62	$2^4 \cdot 3^2 \cdot 23$	$2 \cdot 41^2$	$2^2 \cdot 853$	$2 \cdot 3 \cdot 577$	$2^3 \cdot 439$	$2 \cdot 13 \cdot 137$
13	63	.....	$3 \cdot 19 \cdot 59$	.....	.....	$3 \cdot 1171$	$7 \cdot 509$
14	64	$2 \cdot 1657$	$2^2 \cdot 29^2$	$2 \cdot 3 \cdot 569$	$2^3 \cdot 433$	$2 \cdot 7 \cdot 251$	$2^2 \cdot 3^4 \cdot 11$
15	65	$3 \cdot 5 \cdot 13 \cdot 17$	$5 \cdot 673$	$5 \cdot 683$	$3^2 \cdot 5 \cdot 7 \cdot 11$	$5 \cdot 19 \cdot 37$	$5 \cdot 23 \cdot 31$
16	66	$2^2 \cdot 829$	$2 \cdot 3^2 \cdot 11 \cdot 17$	$2^3 \cdot 7 \cdot 61$	$2 \cdot 1733$	$2^2 \cdot 3 \cdot 293$	$2 \cdot 1783$
17	67	$31 \cdot 107$	$7 \cdot 13 \cdot 37$	$3 \cdot 17 \cdot 67$	.....	.....	$3 \cdot 29 \cdot 41$
18	68	$2 \cdot 3 \cdot 7 \cdot 79$	$2^3 \cdot 421$	$2 \cdot 1709$	$2^2 \cdot 3 \cdot 17^2$	$2 \cdot 1759$	$2^4 \cdot 223$
19	69	.....	$3 \cdot 1123$	$13 \cdot 263$	.....	$3^2 \cdot 17 \cdot 23$	$43 \cdot 83$
20	70	$2^3 \cdot 5 \cdot 83$	$2 \cdot 5 \cdot 337$	$2^2 \cdot 3^2 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 347$	$2^6 \cdot 5 \cdot 11$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 17$
21	71	$3^4 \cdot 41$	.....	$11 \cdot 311$	$3 \cdot 13 \cdot 89$	$7 \cdot 503$	.....
22	72	$2 \cdot 11 \cdot 151$	$2^2 \cdot 3 \cdot 281$	$2 \cdot 29 \cdot 59$	$2^4 \cdot 7 \cdot 31$	$2 \cdot 3 \cdot 587$	$2^2 \cdot 19 \cdot 47$
23	73	.....	.....	$3 \cdot 7 \cdot 163$	$23 \cdot 151$	$13 \cdot 271$	$3^2 \cdot 397$
24	74	$2^2 \cdot 3 \cdot 277$	$2 \cdot 7 \cdot 241$	$2^5 \cdot 107$	$2 \cdot 3^2 \cdot 193$	$2^2 \cdot 881$	$2 \cdot 1787$
25	75	$5^2 \cdot 7 \cdot 19$	$3^3 \cdot 5^3$	$5^2 \cdot 137$	$5^2 \cdot 139$	$3 \cdot 5^2 \cdot 47$	$5^2 \cdot 11 \cdot 13$
26	76	$2 \cdot 1663$	$2^4 \cdot 211$	$2 \cdot 3 \cdot 571$	$2^2 \cdot 11 \cdot 79$	$2 \cdot 41 \cdot 43$	$2^3 \cdot 3 \cdot 149$
27	77	$3 \cdot 1109$	$11 \cdot 307$	$23 \cdot 149$	$3 \cdot 19 \cdot 61$	.....	$7^2 \cdot 73$
28	78	$2^8 \cdot 13$	$2 \cdot 3 \cdot 563$	$2^2 \cdot 857$	$2 \cdot 37 \cdot 47$	$2^3 \cdot 3^2 \cdot 7^2$	$2 \cdot 1789$
29	79	.....	$31 \cdot 109$	$3^3 \cdot 127$	$7^2 \cdot 71$	.....	$3 \cdot 1193$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 37$	$2^2 \cdot 5 \cdot 13^2$	$2 \cdot 5 \cdot 7^3$	$2^3 \cdot 3 \cdot 5 \cdot 29$	$2 \cdot 5 \cdot 353$	$2^2 \cdot 5 \cdot 179$
31	81	.....	$3 \cdot 7^2 \cdot 23$	$47 \cdot 73$	59^2	$3 \cdot 11 \cdot 107$	.....
32	82	$2^2 \cdot 7^2 \cdot 17$	$2 \cdot 19 \cdot 89$	$2^3 \cdot 3 \cdot 11 \cdot 13$	$2 \cdot 1741$	$2^2 \cdot 883$	$2 \cdot 3^2 \cdot 199$
33	83	$3 \cdot 11 \cdot 101$	$17 \cdot 199$	.....	$3^4 \cdot 43$	.....	.....
34	84	$2 \cdot 1667$	$2^3 \cdot 3^2 \cdot 47$	$2 \cdot 17 \cdot 101$	$2^2 \cdot 13 \cdot 67$	$2 \cdot 3 \cdot 19 \cdot 31$	$2^9 \cdot 7$
35	85	$5 \cdot 23 \cdot 29$	$5 \cdot 677$	$3 \cdot 5 \cdot 229$	$5 \cdot 17 \cdot 41$	$5 \cdot 7 \cdot 101$	$3 \cdot 5 \cdot 239$
36	86	$2^3 \cdot 3 \cdot 139$	$2 \cdot 1693$	$2^2 \cdot 859$	$2 \cdot 3 \cdot 7 \cdot 83$	$2^4 \cdot 13 \cdot 17$	$2 \cdot 11 \cdot 163$
37	87	$47 \cdot 71$	$3 \cdot 1129$	$7 \cdot 491$	$11 \cdot 317$	$3^3 \cdot 131$	$17 \cdot 211$
38	88	$2 \cdot 1669$	$2^2 \cdot 7 \cdot 11^2$	$2 \cdot 3^2 \cdot 191$	$2^5 \cdot 109$	$2 \cdot 29 \cdot 61$	$2^2 \cdot 3 \cdot 13 \cdot 23$
39	89	$3^2 \cdot 7 \cdot 53$	.....	$19 \cdot 181$	$3 \cdot 1163$	.....	$37 \cdot 97$
40	90	$2^2 \cdot 5 \cdot 167$	$2 \cdot 3 \cdot 5 \cdot 113$	$2^4 \cdot 5 \cdot 43$	$2 \cdot 5 \cdot 349$	$2^2 \cdot 3 \cdot 5 \cdot 59$	$2 \cdot 5 \cdot 359$
41	91	$13 \cdot 257$	.....	$3 \cdot 31 \cdot 37$	.....	.....	$3^3 \cdot 7 \cdot 19$
42	92	$2 \cdot 3 \cdot 557$	$2^6 \cdot 53$	$2 \cdot 1721$	$2^2 \cdot 3^2 \cdot 97$	$2 \cdot 7 \cdot 11 \cdot 23$	$2^3 \cdot 449$
43	93	.....	$3^2 \cdot 13 \cdot 29$	$11 \cdot 313$	$7 \cdot 499$	$3 \cdot 1181$	.....
44	94	$2^4 \cdot 11 \cdot 19$	$2 \cdot 1697$	$2^2 \cdot 3 \cdot 7 \cdot 41$	$2 \cdot 1747$	$2^3 \cdot 443$	$2 \cdot 3 \cdot 599$
45	95	$3 \cdot 5 \cdot 223$	$5 \cdot 7 \cdot 97$	$5 \cdot 13 \cdot 53$	$3 \cdot 5 \cdot 233$	$5 \cdot 709$	$5 \cdot 719$
46	96	$2 \cdot 7 \cdot 239$	$2^2 \cdot 3 \cdot 283$	$2 \cdot 1723$	$2^3 \cdot 19 \cdot 23$	$2 \cdot 3^2 \cdot 197$	$2^2 \cdot 29 \cdot 31$
47	97	.....	$43 \cdot 79$	$3^2 \cdot 383$	$13 \cdot 269$	.....	$3 \cdot 11 \cdot 109$
48	98	$2^2 \cdot 3^3 \cdot 31$	$2 \cdot 1699$	$2^3 \cdot 431$	$2 \cdot 3 \cdot 11 \cdot 53$	$2^2 \cdot 887$	$2 \cdot 7 \cdot 257$
49	99	$17 \cdot 197$	$3 \cdot 11 \cdot 103$	.....	.....	$3 \cdot 7 \cdot 13^2$	$59 \cdot 61$
50	100	$2 \cdot 5^2 \cdot 67$	$2^3 \cdot 5^2 \cdot 17$	$2 \cdot 3 \cdot 5^2 \cdot 23$	$2^2 \cdot 5^3 \cdot 7$	$2 \cdot 5^2 \cdot 71$	$2^4 \cdot 3^2 \cdot 5^2$

Prime Numbers and Factors, 3600–3900.

From	To	3600 3650	3650 3700	3700 3750	3750 3800	3800 3850	3850 3900
0	50	$2^4 \cdot 3^2 \cdot 5^2$	$2 \cdot 5^2 \cdot 73$	$2^2 \cdot 5^2 \cdot 37$	$2 \cdot 3 \cdot 5^4$	$2^3 \cdot 5^2 \cdot 19$	$2 \cdot 5^2 \cdot 7 \cdot 11$
1	51	$13 \cdot 277$	$3 \cdot 1217$	.....	$11^2 \cdot 31$	$3 \cdot 7 \cdot 181$	.....
2	52	$2 \cdot 1801$	$2^2 \cdot 11 \cdot 83$	$2 \cdot 3 \cdot 617$	$2^3 \cdot 7 \cdot 67$	$2 \cdot 1901$	$2^2 \cdot 3^2 \cdot 107$
3	53	$3 \cdot 1201$	$13 \cdot 281$	$7 \cdot 23^2$	$3^3 \cdot 139$	.....	.....
4	54	$2^2 \cdot 17 \cdot 53$	$2 \cdot 3^2 \cdot 7 \cdot 29$	$2^3 \cdot 463$	$2 \cdot 1877$	$2^2 \cdot 3 \cdot 317$	$2 \cdot 41 \cdot 47$
5	55	$5 \cdot 7 \cdot 103$	$5 \cdot 17 \cdot 43$	$3 \cdot 5 \cdot 13 \cdot 19$	$5 \cdot 751$	$5 \cdot 761$	$3 \cdot 5 \cdot 257$
6	56	$2 \cdot 3 \cdot 601$	$2^3 \cdot 457$	$2 \cdot 17 \cdot 109$	$2^2 \cdot 3 \cdot 313$	$2 \cdot 11 \cdot 173$	$2^4 \cdot 241$
7	57	.....	$3 \cdot 23 \cdot 53$	$11 \cdot 337$	$13 \cdot 17^2$	$3^4 \cdot 47$	$7 \cdot 19 \cdot 29$
8	58	$2^3 \cdot 11 \cdot 41$	$2 \cdot 31 \cdot 59$	$2^2 \cdot 3^2 \cdot 103$	$2 \cdot 1879$	$2^5 \cdot 7 \cdot 17$	$2 \cdot 3 \cdot 643$
9	59	$3^2 \cdot 401$	.....	.....	$3 \cdot 7 \cdot 179$	$13 \cdot 293$	$17 \cdot 227$
10	60	$2 \cdot 5 \cdot 19^2$	$2^2 \cdot 3 \cdot 5 \cdot 61$	$2 \cdot 5 \cdot 7 \cdot 53$	$2^4 \cdot 5 \cdot 47$	$2 \cdot 3 \cdot 5 \cdot 127$	$2^2 \cdot 5 \cdot 193$
11	61	$23 \cdot 157$	$7 \cdot 523$	$3 \cdot 1237$	.....	$37 \cdot 103$	$3^3 \cdot 11 \cdot 13$
12	62	$2^2 \cdot 3 \cdot 7 \cdot 43$	$2 \cdot 1831$	$2^7 \cdot 29$	$2 \cdot 3^2 \cdot 11 \cdot 19$	$2^2 \cdot 953$	$2 \cdot 1931$
13	63	.....	$3^2 \cdot 11 \cdot 37$	$47 \cdot 79$	$53 \cdot 71$	$3 \cdot 31 \cdot 41$	.....
14	64	$2 \cdot 13 \cdot 139$	$2^4 \cdot 229$	$2 \cdot 3 \cdot 619$	$2^2 \cdot 941$	$2 \cdot 1907$	$2^3 \cdot 3 \cdot 7 \cdot 23$
15	65	$3 \cdot 5 \cdot 241$	$5 \cdot 733$	$5 \cdot 743$	$3 \cdot 5 \cdot 251$	$5 \cdot 7 \cdot 109$	$5 \cdot 773$
16	66	$2^5 \cdot 113$	$2 \cdot 3 \cdot 13 \cdot 47$	$2^2 \cdot 929$	$2 \cdot 7 \cdot 269$	$2^3 \cdot 3^2 \cdot 53$	$2 \cdot 1933$
17	67	.....	$19 \cdot 193$	$3^2 \cdot 7 \cdot 59$	.....	$11 \cdot 347$	$3 \cdot 1289$
18	68	$2 \cdot 3^3 \cdot 67$	$2^2 \cdot 7 \cdot 131$	$2 \cdot 11 \cdot 13^2$	$2^3 \cdot 3 \cdot 157$	$2 \cdot 23 \cdot 83$	$2^2 \cdot 967$
19	69	$7 \cdot 11 \cdot 47$	$3 \cdot 1223$	.....	.....	$3 \cdot 19 \cdot 67$	$53 \cdot 73$
20	70	$2^2 \cdot 5 \cdot 181$	$2 \cdot 5 \cdot 367$	$2^3 \cdot 3 \cdot 5 \cdot 31$	$2 \cdot 5 \cdot 13 \cdot 29$	$2^2 \cdot 5 \cdot 191$	$2 \cdot 3^2 \cdot 5 \cdot 43$
21	71	$3 \cdot 17 \cdot 71$	.....	61^2	$3^2 \cdot 419$	.....	$7^2 \cdot 79$
22	72	$2 \cdot 1811$	$2^3 \cdot 3^3 \cdot 17$	$2 \cdot 1861$	$2^2 \cdot 23 \cdot 41$	$2 \cdot 3 \cdot 7^2 \cdot 13$	$2^5 \cdot 11^2$
23	73	.....	.....	$3 \cdot 17 \cdot 73$	$7^3 \cdot 11$	.....	$3 \cdot 1291$
24	74	$2^3 \cdot 3 \cdot 151$	$2 \cdot 11 \cdot 167$	$2^2 \cdot 7^2 \cdot 19$	$2 \cdot 3 \cdot 17 \cdot 37$	$2^4 \cdot 239$	$2 \cdot 13 \cdot 149$
25	75	$5^3 \cdot 29$	$3 \cdot 5^2 \cdot 7^2$	$5^2 \cdot 149$	$5^2 \cdot 151$	$3^2 \cdot 5^2 \cdot 17$	$5^3 \cdot 31$
26	76	$2 \cdot 7^2 \cdot 37$	$2^2 \cdot 919$	$2 \cdot 3^4 \cdot 23$	$2^6 \cdot 59$	$2 \cdot 1913$	$2^2 \cdot 3 \cdot 17 \cdot 19$
27	77	$3^2 \cdot 13 \cdot 31$	.....	.....	$3 \cdot 1259$	$43 \cdot 89$	.....
28	78	$2^2 \cdot 907$	$2 \cdot 3 \cdot 613$	$2^4 \cdot 233$	$2 \cdot 1889$	$2^2 \cdot 3 \cdot 11 \cdot 29$	$2 \cdot 7 \cdot 277$
29	79	$19 \cdot 191$	$13 \cdot 283$	$3 \cdot 11 \cdot 113$	.....	$7 \cdot 547$	$3^2 \cdot 431$
30	80	$2 \cdot 3 \cdot 5 \cdot 11^2$	$2^5 \cdot 5 \cdot 23$	$2 \cdot 5 \cdot 373$	$2^2 \cdot 3^3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 383$	$2^3 \cdot 5 \cdot 97$
31	81	.....	$3^2 \cdot 409$	$7 \cdot 13 \cdot 41$	$19 \cdot 199$	$3 \cdot 1277$	.....
32	82	$2^4 \cdot 277$	$2 \cdot 7 \cdot 263$	$2^2 \cdot 3 \cdot 311$	$2 \cdot 31 \cdot 61$	$2^3 \cdot 479$	$2 \cdot 3 \cdot 647$
33	83	$3 \cdot 7 \cdot 173$	$29 \cdot 127$	.....	$3 \cdot 13 \cdot 97$	.....	$11 \cdot 353$
34	84	$2 \cdot 23 \cdot 79$	$2^2 \cdot 3 \cdot 307$	$2 \cdot 1867$	$2^3 \cdot 11 \cdot 43$	$2 \cdot 3^3 \cdot 71$	$2^2 \cdot 971$
35	85	$5 \cdot 727$	$5 \cdot 11 \cdot 67$	$3^2 \cdot 5 \cdot 83$	$5 \cdot 757$	$5 \cdot 13 \cdot 59$	$3 \cdot 5 \cdot 7 \cdot 37$
36	86	$2^2 \cdot 3^2 \cdot 101$	$2 \cdot 19 \cdot 97$	$2^3 \cdot 467$	$2 \cdot 3 \cdot 631$	$2^2 \cdot 7 \cdot 137$	$2 \cdot 29 \cdot 67$
37	87	.....	$3 \cdot 1229$	$37 \cdot 101$	$7 \cdot 541$	$3 \cdot 1279$	$13^2 \cdot 23$
38	88	$2 \cdot 17 \cdot 107$	$2^3 \cdot 461$	$2 \cdot 3 \cdot 7 \cdot 89$	$2^2 \cdot 947$	$2 \cdot 19 \cdot 101$	$2^4 \cdot 3^5$
39	89	$3 \cdot 1213$	$7 \cdot 17 \cdot 31$	.....	$3^2 \cdot 421$	$11 \cdot 349$	.....
40	90	$2^3 \cdot 5 \cdot 7 \cdot 13$	$2 \cdot 3^2 \cdot 5 \cdot 41$	$2^2 \cdot 5 \cdot 11 \cdot 17$	$2 \cdot 5 \cdot 379$	$2^3 \cdot 3 \cdot 5$	$2 \cdot 5 \cdot 389$
41	91	$11 \cdot 331$	.....	$3 \cdot 29 \cdot 43$	$17 \cdot 223$	$23 \cdot 167$	$3 \cdot 1297$
42	92	$2 \cdot 3 \cdot 607$	$2^2 \cdot 13 \cdot 71$	$2 \cdot 1871$	$2^4 \cdot 3 \cdot 79$	$2 \cdot 17 \cdot 113$	$2^2 \cdot 7 \cdot 139$
43	93	.....	$3 \cdot 1231$	$19 \cdot 197$	.....	$3^2 \cdot 7 \cdot 61$	$17 \cdot 229$
44	94	$2^2 \cdot 911$	$2 \cdot 1847$	$2^5 \cdot 3^2 \cdot 13$	$2 \cdot 7 \cdot 271$	$2^2 \cdot 31^2$	$2 \cdot 3 \cdot 11 \cdot 59$
45	95	$3^6 \cdot 5$	$5 \cdot 739$	$5 \cdot 7 \cdot 107$	$3 \cdot 5 \cdot 11 \cdot 23$	$5 \cdot 769$	$5 \cdot 19 \cdot 41$
46	96	$2 \cdot 1823$	$2^4 \cdot 3 \cdot 7 \cdot 11$	$2 \cdot 1873$	$2^2 \cdot 13 \cdot 73$	$2 \cdot 3 \cdot 641$	$2^3 \cdot 487$
47	97	$7 \cdot 521$	.....	$3 \cdot 1249$	.....	.....	$3^2 \cdot 433$
48	98	$2^6 \cdot 3 \cdot 19$	$2 \cdot 43^2$	$2^2 \cdot 937$	$2 \cdot 3^2 \cdot 211$	$2^3 \cdot 13 \cdot 37$	$2 \cdot 1949$
49	99	$41 \cdot 89$	$3^3 \cdot 137$	$23 \cdot 163$	$29 \cdot 131$	$3 \cdot 1283$	$7 \cdot 557$
50	100	$2 \cdot 5^2 \cdot 73$	$2^2 \cdot 5^2 \cdot 37$	$2 \cdot 3 \cdot 5^4$	$2^3 \cdot 5^2 \cdot 19$	$2 \cdot 5^2 \cdot 7 \cdot 11$	$2^2 \cdot 3 \cdot 5^2 \cdot 13$

Prime Numbers and Factors, 3900–4200.

From	To	3900	3950	4000	4050	4100	4150
		3950	4000	4050	4100	4150	4200
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 13$	$2 \cdot 5^2 \cdot 79$	$2^5 \cdot 5^3$	$2 \cdot 3^4 \cdot 5^2$	$2^2 \cdot 5^2 \cdot 41$	$2 \cdot 5^2 \cdot 83$
1	51	$47 \cdot 83$	$3^2 \cdot 439$	.....	.....	$3 \cdot 1367$	$7 \cdot 593$
2	52	$2 \cdot 1951$	$2^4 \cdot 13 \cdot 19$	$2 \cdot 3 \cdot 23 \cdot 29$	$2^2 \cdot 1013$	$2 \cdot 7 \cdot 293$	$2^3 \cdot 3 \cdot 173$
3	53	$3 \cdot 1301$	$59 \cdot 67$	.....	$3 \cdot 7 \cdot 193$	$11 \cdot 373$	.....
4	54	$2^6 \cdot 61$	$2 \cdot 3 \cdot 659$	$2^2 \cdot 7 \cdot 11 \cdot 13$	$2 \cdot 2027$	$2^3 \cdot 3^3 \cdot 19$	$2 \cdot 31 \cdot 67$
5	55	$5 \cdot 11 \cdot 71$	$5 \cdot 7 \cdot 113$	$3^2 \cdot 5 \cdot 89$	$5 \cdot 811$	$5 \cdot 821$	$3 \cdot 5 \cdot 277$
6	56	$2 \cdot 3^2 \cdot 7 \cdot 31$	$2^2 \cdot 23 \cdot 43$	$2 \cdot 2003$	$2^3 \cdot 3 \cdot 13^2$	$2 \cdot 2053$	$2^2 \cdot 1039$
7	57	.....	$3 \cdot 1319$	.....	.....	$3 \cdot 37^2$	.....
8	58	$2^2 \cdot 977$	$2 \cdot 1979$	$2^3 \cdot 3 \cdot 167$	$2 \cdot 2029$	$2^2 \cdot 13 \cdot 79$	$2 \cdot 3^3 \cdot 7 \cdot 11$
9	59	$3 \cdot 1303$	$37 \cdot 107$	$19 \cdot 211$	$3^2 \cdot 11 \cdot 41$	$7 \cdot 587$	.....
10	60	$2 \cdot 5 \cdot 17 \cdot 23$	$2^3 \cdot 3^2 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 401$	$2^2 \cdot 5 \cdot 7 \cdot 29$	$2 \cdot 3 \cdot 5 \cdot 137$	$2^6 \cdot 5 \cdot 13$
11	61	.....	$17 \cdot 233$	$3 \cdot 7 \cdot 191$	$31 \cdot 131$	.....	$3 \cdot 19 \cdot 73$
12	62	$2^3 \cdot 3 \cdot 163$	$2 \cdot 7 \cdot 283$	$2^2 \cdot 17 \cdot 59$	$2 \cdot 3 \cdot 677$	$2^4 \cdot 257$	$2 \cdot 2081$
13	63	$7 \cdot 13 \cdot 43$	$3 \cdot 1321$	.....	$17 \cdot 239$	$3^2 \cdot 457$	$23 \cdot 181$
14	64	$2 \cdot 19 \cdot 103$	$2^2 \cdot 991$	$2 \cdot 3^2 \cdot 223$	$2^5 \cdot 127$	$2 \cdot 11^2 \cdot 17$	$2^2 \cdot 3 \cdot 347$
15	65	$3^3 \cdot 5 \cdot 29$	$5 \cdot 13 \cdot 61$	$5 \cdot 11 \cdot 73$	$3 \cdot 5 \cdot 271$	$5 \cdot 823$	$5 \cdot 7^2 \cdot 17$
16	66	$2^2 \cdot 11 \cdot 89$	$2 \cdot 3 \cdot 661$	$2^4 \cdot 251$	$2 \cdot 19 \cdot 107$	$2^2 \cdot 3 \cdot 7^3$	$2 \cdot 2083$
17	67	.....	.....	$3 \cdot 13 \cdot 103$	$7^2 \cdot 83$	$23 \cdot 179$	$3^2 \cdot 463$
18	68	$2 \cdot 3 \cdot 653$	$2^7 \cdot 31$	$2 \cdot 7^2 \cdot 41$	$2^2 \cdot 3^2 \cdot 113$	$2 \cdot 29 \cdot 71$	$2^3 \cdot 521$
19	69	.....	$3^4 \cdot 7^2$	.....	$13 \cdot 313$	$3 \cdot 1373$	$11 \cdot 379$
20	70	$2^4 \cdot 5 \cdot 7^2$	$2 \cdot 5 \cdot 397$	$2^2 \cdot 3 \cdot 5 \cdot 67$	$2 \cdot 5 \cdot 11 \cdot 37$	$2^3 \cdot 5 \cdot 103$	$2 \cdot 3 \cdot 5 \cdot 139$
21	71	$3 \cdot 1307$	$11 \cdot 19^2$	.....	$3 \cdot 23 \cdot 59$	$13 \cdot 317$	$43 \cdot 97$
22	72	$2 \cdot 37 \cdot 53$	$2^2 \cdot 3 \cdot 331$	$2 \cdot 2011$	$2^3 \cdot 509$	$2 \cdot 3^2 \cdot 229$	$2^2 \cdot 7 \cdot 149$
23	73	.....	$29 \cdot 137$	$3^3 \cdot 149$	.....	$7 \cdot 19 \cdot 31$	$3 \cdot 13 \cdot 107$
24	74	$2^2 \cdot 3^2 \cdot 109$	$2 \cdot 1987$	$2^3 \cdot 503$	$2 \cdot 3 \cdot 7 \cdot 97$	$2^2 \cdot 1031$	$2 \cdot 2087$
25	75	$5^2 \cdot 157$	$3 \cdot 5^2 \cdot 53$	$5^2 \cdot 7 \cdot 23$	$5^2 \cdot 163$	$3 \cdot 5^3 \cdot 11$	$5^2 \cdot 167$
26	76	$2 \cdot 13 \cdot 151$	$2^3 \cdot 7 \cdot 71$	$2 \cdot 3 \cdot 11 \cdot 61$	$2^2 \cdot 1019$	$2 \cdot 2063$	$2^4 \cdot 3^2 \cdot 29$
27	77	$3 \cdot 7 \cdot 11 \cdot 17$	$41 \cdot 97$	.....	$3^3 \cdot 151$	.....	.....
28	78	$2^3 \cdot 491$	$2 \cdot 3^2 \cdot 13 \cdot 17$	$2^2 \cdot 19 \cdot 53$	$2 \cdot 2039$	$2^5 \cdot 3 \cdot 43$	$2 \cdot 2089$
29	79	.....	$23 \cdot 173$	$3 \cdot 17 \cdot 79$	.....	.....	$3 \cdot 7 \cdot 199$
30	80	$2 \cdot 3 \cdot 5 \cdot 131$	$2^2 \cdot 5 \cdot 199$	$2 \cdot 5 \cdot 13 \cdot 31$	$2^4 \cdot 3 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 7 \cdot 59$	$2^2 \cdot 5 \cdot 11 \cdot 19$
31	81	.....	$3 \cdot 1327$	$29 \cdot 139$	$7 \cdot 11 \cdot 53$	$3^5 \cdot 17$	$37 \cdot 113$
32	82	$2^2 \cdot 983$	$2 \cdot 11 \cdot 181$	$2^6 \cdot 3^2 \cdot 7$	$2 \cdot 13 \cdot 157$	$2^2 \cdot 1033$	$2 \cdot 3 \cdot 17 \cdot 41$
33	83	$3^2 \cdot 19 \cdot 23$	$7 \cdot 569$	$37 \cdot 109$	$3 \cdot 1361$	.....	$47 \cdot 89$
34	84	$2 \cdot 7 \cdot 281$	$2^4 \cdot 3 \cdot 83$	$2 \cdot 2017$	$2^2 \cdot 1021$	$2 \cdot 3 \cdot 13 \cdot 53$	$2^3 \cdot 523$
35	85	$5 \cdot 787$	$5 \cdot 797$	$3 \cdot 5 \cdot 269$	$5 \cdot 19 \cdot 43$	$5 \cdot 827$	$3^3 \cdot 5 \cdot 31$
36	86	$2^5 \cdot 3 \cdot 41$	$2 \cdot 1993$	$2^2 \cdot 1009$	$2 \cdot 3^3 \cdot 227$	$2^3 \cdot 11 \cdot 47$	$2 \cdot 7 \cdot 13 \cdot 23$
37	87	$31 \cdot 127$	$3^2 \cdot 443$	$11 \cdot 367$	$61 \cdot 67$	$3 \cdot 7 \cdot 197$	$53 \cdot 79$
38	88	$2 \cdot 11 \cdot 179$	$2^3 \cdot 997$	$2 \cdot 3 \cdot 673$	$2^3 \cdot 7 \cdot 73$	$2 \cdot 2069$	$2^2 \cdot 3 \cdot 349$
39	89	$3 \cdot 13 \cdot 101$	.....	$7 \cdot 577$	$3 \cdot 29 \cdot 47$	.....	$59 \cdot 71$
40	90	$2^2 \cdot 5 \cdot 197$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 19$	$2^3 \cdot 5 \cdot 101$	$2 \cdot 5 \cdot 409$	$2^2 \cdot 3^2 \cdot 5 \cdot 23$	$2 \cdot 5 \cdot 419$
41	91	$7 \cdot 563$	$13 \cdot 307$	$3^2 \cdot 449$	.....	$41 \cdot 101$	$3 \cdot 11 \cdot 127$
42	92	$2 \cdot 3^3 \cdot 73$	$2^3 \cdot 499$	$2 \cdot 43 \cdot 47$	$2^2 \cdot 3 \cdot 11 \cdot 31$	$2 \cdot 19 \cdot 109$	$2^5 \cdot 131$
43	93	.....	$3 \cdot 11^3$	$13 \cdot 311$	.....	$3 \cdot 1381$	$7 \cdot 599$
44	94	$2^3 \cdot 17 \cdot 29$	$2 \cdot 1997$	$2^2 \cdot 3 \cdot 337$	$2 \cdot 23 \cdot 89$	$2^4 \cdot 7 \cdot 37$	$2 \cdot 3^2 \cdot 233$
45	95	$3 \cdot 5 \cdot 263$	$5 \cdot 17 \cdot 47$	$5 \cdot 809$	$3^2 \cdot 5 \cdot 7 \cdot 13$	$5 \cdot 829$	$5 \cdot 839$
46	96	$2 \cdot 1973$	$2^2 \cdot 3^3 \cdot 37$	$2 \cdot 7 \cdot 17^2$	2^{12}	$2 \cdot 3 \cdot 691$	$2^2 \cdot 1049$
47	97	.....	$7 \cdot 571$	$3 \cdot 19 \cdot 71$	$17 \cdot 241$	$11 \cdot 13 \cdot 29$	$3 \cdot 1399$
48	98	$2^2 \cdot 3 \cdot 7 \cdot 47$	$2 \cdot 1999$	$2^4 \cdot 11 \cdot 23$	$2 \cdot 3 \cdot 683$	$2^2 \cdot 17 \cdot 61$	$2 \cdot 2099$
49	99	$11 \cdot 359$	$3 \cdot 31 \cdot 43$	.....	.....	$3^2 \cdot 461$	$13 \cdot 17 \cdot 19$
50	100	$2 \cdot 5^2 \cdot 79$	$2^5 \cdot 5^3$	$2 \cdot 3^4 \cdot 5^2$	$2^2 \cdot 5^2 \cdot 41$	$2 \cdot 5^2 \cdot 83$	$2^3 \cdot 3 \cdot 5^2 \cdot 7$

Prime Numbers and Factors, 4200–4500.

From	To	4200	4250	4300	4350	4400	4450
		4250	4300	4350	4400	4450	4500
0	50	$2^3 \cdot 3 \cdot 5^2 \cdot 7$	$2 \cdot 5^3 \cdot 17$	$2^2 \cdot 5^2 \cdot 43$	$2 \cdot 3 \cdot 5^2 \cdot 29$	$2^4 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 89$
1	51	.....	$3 \cdot 13 \cdot 109$	$11 \cdot 17 \cdot 23$	$19 \cdot 229$	$3^3 \cdot 163$	.....
2	52	$2 \cdot 11 \cdot 191$	$2^2 \cdot 1063$	$2 \cdot 3^2 \cdot 239$	$2^8 \cdot 17$	$2 \cdot 31 \cdot 71$	$2^2 \cdot 3 \cdot 7 \cdot 53$
3	53	$3^2 \cdot 467$	.....	$13 \cdot 331$	$3 \cdot 1451$	$7 \cdot 17 \cdot 37$	$61 \cdot 73$
4	54	$2^2 \cdot 1051$	$2 \cdot 3 \cdot 709$	$2^4 \cdot 269$	$2 \cdot 7 \cdot 311$	$2^2 \cdot 3 \cdot 367$	$2 \cdot 17 \cdot 131$
5	55	$5 \cdot 29^2$	$5 \cdot 23 \cdot 37$	$3 \cdot 5 \cdot 7 \cdot 41$	$5 \cdot 13 \cdot 67$	$5 \cdot 881$	$3^4 \cdot 5 \cdot 11$
6	56	$2 \cdot 3 \cdot 701$	$2^5 \cdot 7 \cdot 19$	$2 \cdot 2153$	$2^2 \cdot 3^2 \cdot 11^2$	$2 \cdot 2203$	$2^3 \cdot 557$
7	57	$7 \cdot 601$	$3^2 \cdot 11 \cdot 43$	$59 \cdot 73$	.....	$3 \cdot 13 \cdot 113$	.....
8	58	$2^4 \cdot 263$	$2 \cdot 2129$	$2^2 \cdot 3 \cdot 359$	$2 \cdot 2179$	$2^3 \cdot 19 \cdot 29$	$2 \cdot 3 \cdot 743$
9	59	$3 \cdot 23 \cdot 61$	.....	$31 \cdot 139$	$3 \cdot 1453$	.....	$7^3 \cdot 13$
10	60	$2 \cdot 5 \cdot 421$	$2^2 \cdot 3 \cdot 5 \cdot 71$	$2 \cdot 5 \cdot 431$	$2^3 \cdot 5 \cdot 109$	$2 \cdot 3^2 \cdot 5 \cdot 7^2$	$2^2 \cdot 5 \cdot 223$
11	61	.....	.....	$3^2 \cdot 479$	$7^2 \cdot 89$	$11 \cdot 401$	$3 \cdot 1487$
12	62	$2^2 \cdot 3^4 \cdot 13$	$2 \cdot 2131$	$2^3 \cdot 7^2 \cdot 11$	$2 \cdot 3 \cdot 727$	$2^2 \cdot 1103$	$2 \cdot 23 \cdot 97$
13	63	$11 \cdot 383$	$3 \cdot 7^2 \cdot 29$	$19 \cdot 227$	.....	$3 \cdot 1471$	.....
14	64	$2 \cdot 7^2 \cdot 43$	$2^3 \cdot 13 \cdot 41$	$2 \cdot 3 \cdot 719$	$2^2 \cdot 1091$	$2 \cdot 2207$	$2^4 \cdot 3^2 \cdot 31$
15	65	$3 \cdot 5 \cdot 281$	$5 \cdot 853$	$5 \cdot 863$	$3^2 \cdot 5 \cdot 97$	$5 \cdot 883$	$5 \cdot 19 \cdot 47$
16	66	$2^3 \cdot 17 \cdot 31$	$2 \cdot 3^3 \cdot 79$	$2^2 \cdot 13 \cdot 83$	$2 \cdot 37 \cdot 59$	$2^6 \cdot 3 \cdot 23$	$2 \cdot 7 \cdot 11 \cdot 29$
17	67	.....	$17 \cdot 251$	$3 \cdot 1439$	$11 \cdot 397$	$7 \cdot 631$	$3 \cdot 1489$
18	68	$2 \cdot 3 \cdot 19 \cdot 37$	$2^2 \cdot 11 \cdot 97$	$2 \cdot 17 \cdot 127$	$2^4 \cdot 3 \cdot 7 \cdot 13$	$2 \cdot 47^2$	$2^2 \cdot 1117$
19	69	.....	$3 \cdot 1423$	$7 \cdot 617$	$17 \cdot 257$	$3^2 \cdot 491$	$41 \cdot 109$
20	70	$2^2 \cdot 5 \cdot 211$	$2 \cdot 5 \cdot 7 \cdot 61$	$2^5 \cdot 3^3 \cdot 5$	$2 \cdot 5 \cdot 19 \cdot 23$	$2^2 \cdot 5 \cdot 13 \cdot 17$	$2 \cdot 3 \cdot 5 \cdot 149$
21	71	$3^2 \cdot 7 \cdot 67$	.....	$29 \cdot 149$	$3 \cdot 31 \cdot 47$	.....	$17 \cdot 263$
22	72	$2 \cdot 2111$	$2^4 \cdot 3 \cdot 89$	$2 \cdot 2161$	$2^2 \cdot 1093$	$2 \cdot 3 \cdot 11 \cdot 67$	$2^3 \cdot 13 \cdot 43$
23	73	$41 \cdot 103$	.....	$3 \cdot 11 \cdot 131$	.....	.....	$3^2 \cdot 7 \cdot 71$
24	74	$2^7 \cdot 3 \cdot 11$	$2 \cdot 2137$	$2^2 \cdot 23 \cdot 47$	$2 \cdot 3^7$	$2^3 \cdot 7 \cdot 79$	$2 \cdot 2237$
25	75	$5^2 \cdot 13^2$	$3^2 \cdot 5^2 \cdot 19$	$5^2 \cdot 173$	$5^4 \cdot 7$	$3 \cdot 5^2 \cdot 59$	$5^2 \cdot 179$
26	76	$2 \cdot 2113$	$2^2 \cdot 1069$	$2 \cdot 3 \cdot 7 \cdot 103$	$2^3 \cdot 547$	$2 \cdot 2213$	$2^2 \cdot 3 \cdot 373$
27	77	$3 \cdot 1409$	$7 \cdot 13 \cdot 47$	.....	$3 \cdot 1459$	$19 \cdot 233$	$11^2 \cdot 37$
28	78	$2^2 \cdot 7 \cdot 151$	$2 \cdot 3 \cdot 23 \cdot 31$	$2^3 \cdot 541$	$2 \cdot 11 \cdot 199$	$2^2 \cdot 3^3 \cdot 41$	$2 \cdot 2239$
29	79	.....	$11 \cdot 389$	$3^2 \cdot 13 \cdot 37$	$29 \cdot 151$	$43 \cdot 103$	$3 \cdot 1493$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 47$	$2^3 \cdot 5 \cdot 107$	$2 \cdot 5 \cdot 433$	$2^2 \cdot 3 \cdot 5 \cdot 73$	$2 \cdot 5 \cdot 443$	$2^7 \cdot 5 \cdot 7$
31	81	.....	$3 \cdot 1427$	$61 \cdot 71$	$13 \cdot 337$	$3 \cdot 7 \cdot 211$	.....
32	82	$2^3 \cdot 23^2$	$2 \cdot 2141$	$2^2 \cdot 3 \cdot 19^2$	$2 \cdot 7 \cdot 313$	$2^4 \cdot 277$	$2 \cdot 3^3 \cdot 83$
33	83	$3 \cdot 17 \cdot 83$	.....	$7 \cdot 619$	$3^2 \cdot 487$	$11 \cdot 13 \cdot 31$	.....
34	84	$2 \cdot 29 \cdot 73$	$2^2 \cdot 3^2 \cdot 7 \cdot 17$	$2 \cdot 11 \cdot 197$	$2^5 \cdot 137$	$2 \cdot 3 \cdot 739$	$2^2 \cdot 19 \cdot 59$
35	85	$5 \cdot 7 \cdot 11^2$	$5 \cdot 857$	$3 \cdot 5 \cdot 17^2$	$5 \cdot 877$	$5 \cdot 887$	$3 \cdot 5 \cdot 13 \cdot 23$
36	86	$2^2 \cdot 3 \cdot 353$	$2 \cdot 2143$	$2^4 \cdot 271$	$2 \cdot 3 \cdot 17 \cdot 43$	$2^2 \cdot 1109$	$2 \cdot 2243$
37	87	$19 \cdot 223$	$3 \cdot 1429$	.....	$41 \cdot 107$	$3^2 \cdot 17 \cdot 29$	$7 \cdot 641$
38	88	$2 \cdot 13 \cdot 163$	$2^6 \cdot 67$	$2 \cdot 3^2 \cdot 241$	$2^2 \cdot 1097$	$2 \cdot 7 \cdot 317$	$2^3 \cdot 3 \cdot 11 \cdot 17$
39	89	$3^3 \cdot 157$	.....	.....	$3 \cdot 7 \cdot 11 \cdot 19$	$23 \cdot 193$	67^2
40	90	$2^4 \cdot 5 \cdot 53$	$2 \cdot 3 \cdot 5 \cdot 11 \cdot 13$	$2^2 \cdot 5 \cdot 7 \cdot 31$	$2 \cdot 5 \cdot 439$	$2^3 \cdot 3 \cdot 5 \cdot 37$	$2 \cdot 5 \cdot 449$
41	91	.....	$7 \cdot 613$	$3 \cdot 1447$	.....	.....	$3^2 \cdot 499$
42	92	$2 \cdot 3 \cdot 7 \cdot 101$	$2^2 \cdot 29 \cdot 37$	$2 \cdot 13 \cdot 167$	$2^3 \cdot 3^2 \cdot 61$	$2 \cdot 2221$	$2^2 \cdot 1123$
43	93	.....	$3^4 \cdot 53$	$43 \cdot 101$	$23 \cdot 191$	$3 \cdot 1481$	.....
44	94	$2^2 \cdot 1061$	$2 \cdot 19 \cdot 113$	$2^3 \cdot 3 \cdot 181$	$2 \cdot 13^3$	$2^2 \cdot 11 \cdot 101$	$2 \cdot 3 \cdot 7 \cdot 107$
45	95	$3 \cdot 5 \cdot 283$	$5 \cdot 859$	$5 \cdot 11 \cdot 79$	$3 \cdot 5 \cdot 293$	$5 \cdot 7 \cdot 127$	$5 \cdot 29 \cdot 31$
46	96	$2 \cdot 11 \cdot 193$	$2^3 \cdot 3 \cdot 179$	$2 \cdot 41 \cdot 53$	$2^2 \cdot 7 \cdot 151$	$2 \cdot 3^2 \cdot 13 \cdot 19$	$2^4 \cdot 281$
47	97	$31 \cdot 137$	.....	$3^3 \cdot 7 \cdot 23$	.....	.....	$3 \cdot 1499$
48	98	$2^3 \cdot 3^2 \cdot 59$	$2 \cdot 7 \cdot 307$	$2^2 \cdot 1087$	$2 \cdot 3 \cdot 733$	$2^5 \cdot 139$	$2 \cdot 13 \cdot 173$
49	99	$7 \cdot 607$	$3 \cdot 1433$	.....	$53 \cdot 83$	$3 \cdot 1483$	$11 \cdot 409$
50	100	$2 \cdot 5^3 \cdot 17$	$2^2 \cdot 5^2 \cdot 43$	$2 \cdot 3 \cdot 5^2 \cdot 29$	$2^4 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 89$	$2^2 \cdot 3^2 \cdot 5^3$

Prime Numbers and Factors, 4500–4800.

From	To	4500 4550	4550 4600	4600 4650	4650 4700	4700 4750	4750 4800
0	50	$2^2 \cdot 3^2 \cdot 5^3$	$2 \cdot 5^2 \cdot 7 \cdot 13$	$2^3 \cdot 5^2 \cdot 23$	$2 \cdot 3 \cdot 5^2 \cdot 31$	$2^2 \cdot 5^2 \cdot 47$	$2 \cdot 5^3 \cdot 19$
1	51	$7 \cdot 643$	$3 \cdot 37 \cdot 41$	$43 \cdot 107$	.....	$3 \cdot 1567$	.....
2	52	$2 \cdot 2251$	$2^3 \cdot 569$	$2 \cdot 3 \cdot 13 \cdot 59$	$2^2 \cdot 1163$	$2 \cdot 2351$	$2^4 \cdot 3^3 \cdot 11$
3	53	$3 \cdot 19 \cdot 79$	$29 \cdot 157$	.....	$3^2 \cdot 11 \cdot 47$	.....	$7^2 \cdot 97$
4	54	$2^3 \cdot 563$	$2 \cdot 3^2 \cdot 11 \cdot 23$	$2^2 \cdot 1151$	$2 \cdot 13 \cdot 179$	$2^5 \cdot 3 \cdot 7^2$	$2 \cdot 2377$
5	55	$5 \cdot 17 \cdot 53$	$5 \cdot 911$	$3 \cdot 5 \cdot 307$	$5 \cdot 7^2 \cdot 19$	$5 \cdot 941$	$3 \cdot 5 \cdot 317$
6	56	$2 \cdot 3 \cdot 751$	$2^2 \cdot 17 \cdot 67$	$2 \cdot 7^2 \cdot 47$	$2^4 \cdot 3 \cdot 97$	$2 \cdot 13 \cdot 181$	$2^2 \cdot 29 \cdot 41$
7	57	.....	$3 \cdot 7^2 \cdot 31$	$17 \cdot 271$	.....	$3^2 \cdot 523$	$67 \cdot 71$
8	58	$2^2 \cdot 7^2 \cdot 23$	$2 \cdot 43 \cdot 53$	$2^9 \cdot 3^2$	$2 \cdot 17 \cdot 137$	$2^2 \cdot 11 \cdot 107$	$2 \cdot 3 \cdot 13 \cdot 61$
9	59	$3^3 \cdot 167$	$47 \cdot 97$	$11 \cdot 419$	$3 \cdot 1553$	$17 \cdot 277$	.....
10	60	$2 \cdot 5 \cdot 11 \cdot 41$	$2^4 \cdot 3 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 461$	$2^2 \cdot 5 \cdot 233$	$2 \cdot 3 \cdot 5 \cdot 157$	$2^3 \cdot 5 \cdot 7 \cdot 17$
11	61	$13 \cdot 347$	.....	$3 \cdot 29 \cdot 53$	$59 \cdot 79$	$7 \cdot 673$	$3^2 \cdot 23^2$
12	62	$2^5 \cdot 3 \cdot 47$	$2 \cdot 2281$	$2^2 \cdot 1153$	$2 \cdot 3^2 \cdot 7 \cdot 37$	$2^3 \cdot 19 \cdot 31$	$2 \cdot 2381$
13	63	.....	$3^3 \cdot 13^2$	$7 \cdot 659$	.....	$3 \cdot 1571$	$11 \cdot 433$
14	64	$2 \cdot 37 \cdot 61$	$2^2 \cdot 7 \cdot 163$	$2 \cdot 3 \cdot 769$	$2^3 \cdot 11 \cdot 53$	$2 \cdot 2357$	$2^2 \cdot 3 \cdot 397$
15	65	$3 \cdot 5 \cdot 7 \cdot 43$	$5 \cdot 11 \cdot 83$	$5 \cdot 13 \cdot 71$	$3 \cdot 5 \cdot 311$	$5 \cdot 23 \cdot 41$	$5 \cdot 953$
16	66	$2^2 \cdot 1129$	$2 \cdot 3 \cdot 761$	$2^3 \cdot 577$	$2 \cdot 2333$	$2^2 \cdot 3^2 \cdot 131$	$2 \cdot 2383$
17	67	.....	.....	$3^5 \cdot 19$	$13 \cdot 359$	$53 \cdot 89$	$3 \cdot 7 \cdot 227$
18	68	$2 \cdot 3^2 \cdot 251$	$2^3 \cdot 571$	$2 \cdot 2309$	$2^2 \cdot 3 \cdot 389$	$2 \cdot 7 \cdot 337$	$2^5 \cdot 149$
19	69	.....	$3 \cdot 1523$	$31 \cdot 149$	$7 \cdot 23 \cdot 29$	$3 \cdot 11^2 \cdot 13$	$19 \cdot 251$
20	70	$2^3 \cdot 5 \cdot 113$	$2 \cdot 5 \cdot 457$	$2^2 \cdot 3 \cdot 5 \cdot 7 \cdot 11$	$2 \cdot 5 \cdot 467$	$2^4 \cdot 5 \cdot 59$.	$2 \cdot 3^2 \cdot 5 \cdot 53$
21	71	$3 \cdot 11 \cdot 137$	$7 \cdot 653$	.....	$3^3 \cdot 173$	.....	$13 \cdot 367$
22	72	$2 \cdot 7 \cdot 17 \cdot 19$	$2^2 \cdot 3^2 \cdot 127$	$2 \cdot 2311$	$2^6 \cdot 73$	$2 \cdot 3 \cdot 787$	$2^2 \cdot 1193$
23	73	.....	$17 \cdot 269$	$3 \cdot 23 \cdot 67$	.....	.....	$3 \cdot 37 \cdot 43$
24	74	$2^2 \cdot 3 \cdot 13 \cdot 29$	$2 \cdot 2287$	$2^4 \cdot 17^2$	$2 \cdot 3 \cdot 19 \cdot 41$	$2^2 \cdot 1181$	$2 \cdot 7 \cdot 11 \cdot 31$
25	75	$5^2 \cdot 181$	$3 \cdot 5^2 \cdot 61$	$5^3 \cdot 37$	$5^2 \cdot 11 \cdot 17$	$3^3 \cdot 5^2 \cdot 7$	$5^2 \cdot 191$
26	76	$2 \cdot 31 \cdot 73$	$2^5 \cdot 11 \cdot 13$	$2 \cdot 3^2 \cdot 257$	$2^2 \cdot 7 \cdot 167$	$2 \cdot 17 \cdot 139$	$2^3 \cdot 3 \cdot 199$
27	77	$3^2 \cdot 503$	$23 \cdot 199$	$7 \cdot 661$	$3 \cdot 1559$	$29 \cdot 163$	$17 \cdot 281$
28	78	$2^4 \cdot 283$	$2 \cdot 3 \cdot 7 \cdot 109$	$2^2 \cdot 13 \cdot 89$	$2 \cdot 2339$	$2^3 \cdot 3 \cdot 197$	$2 \cdot 2389$
29	79	$7 \cdot 647$	$19 \cdot 241$	$3 \cdot 1543$	.....	.....	$3^4 \cdot 59$
30	80	$2 \cdot 3 \cdot 5 \cdot 151$	$2^2 \cdot 5 \cdot 229$	$2 \cdot 5 \cdot 463$	$2^3 \cdot 3^2 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 11 \cdot 43$	$2^2 \cdot 5 \cdot 239$
31	81	$23 \cdot 197$	$3^2 \cdot 509$	$11 \cdot 421$	$31 \cdot 151$	$3 \cdot 19 \cdot 83$	$7 \cdot 683$
32	82	$2^2 \cdot 11 \cdot 103$	$2 \cdot 29 \cdot 79$	$2^3 \cdot 3 \cdot 193$	$2 \cdot 2341$	$2^2 \cdot 7 \cdot 13^2$	$2 \cdot 3 \cdot 797$
33	83	$3 \cdot 1511$	.....	$41 \cdot 113$	$3 \cdot 7 \cdot 223$	.....	.....
34	84	$2 \cdot 2267$	$2^3 \cdot 3 \cdot 191$	$2 \cdot 7 \cdot 331$	$2^2 \cdot 1171$	$2 \cdot 3^2 \cdot 263$	$2^4 \cdot 13 \cdot 23$
35	85	$5 \cdot 907$	$5 \cdot 7 \cdot 131$	$3^2 \cdot 5 \cdot 103$	$5 \cdot 937$	$5 \cdot 947$	$3 \cdot 5 \cdot 11 \cdot 29$
36	86	$2^3 \cdot 3^4 \cdot 7$	$2 \cdot 2293$	$2^2 \cdot 19 \cdot 61$	$2 \cdot 3 \cdot 11 \cdot 71$	$2^7 \cdot 37$	$2 \cdot 2393$
37	87	$13 \cdot 349$	$3 \cdot 11 \cdot 139$	.....	$43 \cdot 109$	$3 \cdot 1579$	.....
38	88	$2 \cdot 2269$	$2^2 \cdot 31 \cdot 37$	$2 \cdot 3 \cdot 773$	$2^4 \cdot 293$	$2 \cdot 23 \cdot 103$	$2^2 \cdot 3^2 \cdot 7 \cdot 19$
39	89	$3 \cdot 17 \cdot 89$	$13 \cdot 353$	.....	$3^2 \cdot 521$	$7 \cdot 677$	.....
40	90	$2^2 \cdot 5 \cdot 227$	$2 \cdot 3^3 \cdot 5 \cdot 17$	$2^5 \cdot 5 \cdot 29$	$2 \cdot 5 \cdot 7 \cdot 67$	$2^2 \cdot 3 \cdot 5 \cdot 79$	$2 \cdot 5 \cdot 479$
41	91	$19 \cdot 239$	.....	$3 \cdot 7 \cdot 13 \cdot 17$	.....	$11 \cdot 431$	$3 \cdot 1597$
42	92	$2 \cdot 3 \cdot 757$	$2^4 \cdot 7 \cdot 41$	$2 \cdot 11 \cdot 211$	$2^2 \cdot 3 \cdot 17 \cdot 23$	$2 \cdot 2371$	$2^3 \cdot 599$
43	93	$7 \cdot 11 \cdot 59$	$3 \cdot 1531$	.....	$13 \cdot 19^2$	$3^2 \cdot 17 \cdot 31$	.....
44	94	$2^6 \cdot 71$	$2 \cdot 2297$	$2^2 \cdot 3^3 \cdot 43$	$2 \cdot 2347$	$2^3 \cdot 593$	$2 \cdot 3 \cdot 17 \cdot 47$
45	95	$3^2 \cdot 5 \cdot 101$	$5 \cdot 919$	$5 \cdot 929$	$3 \cdot 5 \cdot 313$	$5 \cdot 13 \cdot 73$	$5 \cdot 7 \cdot 137$
46	96	$2 \cdot 2273$	$2^2 \cdot 3 \cdot 383$	$2 \cdot 23 \cdot 101$	$2^3 \cdot 587$	$2 \cdot 3 \cdot 7 \cdot 113$	$2^2 \cdot 11 \cdot 109$
47	97	.....	.....	$3 \cdot 1549$	$7 \cdot 11 \cdot 61$	$47 \cdot 101$	$3^2 \cdot 13 \cdot 41$
48	98	$2^2 \cdot 3 \cdot 379$	$2 \cdot 11^2 \cdot 19$	$2^3 \cdot 7 \cdot 83$	$2 \cdot 3^4 \cdot 29$	$2^2 \cdot 1187$	$2 \cdot 2399$
49	99	.....	$3^2 \cdot 7 \cdot 73$	.....	$37 \cdot 127$	$3 \cdot 1583$	.....
50	100	$2 \cdot 5^2 \cdot 7 \cdot 13$	$2^3 \cdot 5^2 \cdot 23$	$2 \cdot 3 \cdot 5^2 \cdot 31$	$2^2 \cdot 5^2 \cdot 47$	$2 \cdot 5^3 \cdot 19$	$2^6 \cdot 3 \cdot 5^2$

Prime Numbers and Factors, 4800–5100.

From	To	4800 4850	4850 4900	4900 4950	4950 5000	5000 5050	5050 5100
0	50	$2^6 \cdot 3 \cdot 5^2$	$2 \cdot 5^2 \cdot 97$	$2^2 \cdot 5^2 \cdot 7^2$	$2 \cdot 3^2 \cdot 5^2 \cdot 11$	$2^3 \cdot 5^4$	$2 \cdot 5^2 \cdot 101$
1	51	.....	$3^2 \cdot 7^2 \cdot 11$	$13^2 \cdot 29$	.....	$3 \cdot 1667$	.....
2	52	$2 \cdot 7^4$	$2^2 \cdot 1213$	$2 \cdot 3 \cdot 19 \cdot 43$	$2^3 \cdot 619$	$2 \cdot 41 \cdot 61$	$2^2 \cdot 3 \cdot 421$
3	53	$3 \cdot 1601$	$23 \cdot 211$	.....	$3 \cdot 13 \cdot 127$	.....	$31 \cdot 163$
4	54	$2^2 \cdot 1201$	$2 \cdot 3 \cdot 809$	$2^3 \cdot 613$	$2 \cdot 2477$	$2^2 \cdot 3^2 \cdot 139$	$2 \cdot 7 \cdot 19^2$
5	55	$5 \cdot 31^2$	$5 \cdot 971$	$3^2 \cdot 5 \cdot 109$	$5 \cdot 991$	$5 \cdot 7 \cdot 11 \cdot 13$	$3 \cdot 5 \cdot 337$
6	56	$2 \cdot 3^3 \cdot 89$	$2^3 \cdot 607$	$2 \cdot 11 \cdot 223$	$2^2 \cdot 3 \cdot 7 \cdot 59$	$2 \cdot 2503$	$2^6 \cdot 79$
7	57	$11 \cdot 19 \cdot 23$	$3 \cdot 1619$	$7 \cdot 701$	.....	$3 \cdot 1669$	$13 \cdot 389$
8	58	$2^3 \cdot 601$	$2 \cdot 7 \cdot 347$	$2^2 \cdot 3 \cdot 409$	$2 \cdot 37 \cdot 67$	$2^4 \cdot 313$	$2 \cdot 3^2 \cdot 281$
9	59	$3 \cdot 7 \cdot 229$	$43 \cdot 113$	.....	$3^2 \cdot 19 \cdot 29$	.....	.....
10	60	$2 \cdot 5 \cdot 13 \cdot 37$	$2^2 \cdot 3^5 \cdot 5$	$2 \cdot 5 \cdot 491$	$2^5 \cdot 5 \cdot 31$	$2 \cdot 3 \cdot 5 \cdot 167$	$2^2 \cdot 5 \cdot 11 \cdot 23$
11	61	$17 \cdot 283$	.....	$3 \cdot 1637$	$11^2 \cdot 41$	.....	$3 \cdot 7 \cdot 241$
12	62	$2^2 \cdot 3 \cdot 401$	$2 \cdot 11 \cdot 13 \cdot 17$	$2^4 \cdot 307$	$2 \cdot 3 \cdot 827$	$2^2 \cdot 7 \cdot 179$	$2 \cdot 2531$
13	63	.....	$3 \cdot 1621$	17^3	$7 \cdot 709$	$3^2 \cdot 557$	$61 \cdot 83$
14	64	$2 \cdot 29 \cdot 83$	$2^8 \cdot 19$	$2 \cdot 3^3 \cdot 7 \cdot 13$	$2^2 \cdot 17 \cdot 73$	$2 \cdot 23 \cdot 109$	$2^3 \cdot 3 \cdot 211$
15	65	$3^2 \cdot 5 \cdot 107$	$5 \cdot 7 \cdot 139$	$5 \cdot 983$	$3 \cdot 5 \cdot 331$	$5 \cdot 17 \cdot 59$	$5 \cdot 1013$
16	66	$2^4 \cdot 7 \cdot 43$	$2 \cdot 3 \cdot 811$	$2^2 \cdot 1229$	$2 \cdot 13 \cdot 191$	$2^3 \cdot 3 \cdot 11 \cdot 19$	$2 \cdot 17 \cdot 149$
17	67	.....	$31 \cdot 157$	$3 \cdot 11 \cdot 149$	.....	$29 \cdot 173$	$3^2 \cdot 563$
18	68	$2 \cdot 3 \cdot 11 \cdot 73$	$2^2 \cdot 1217$	$2 \cdot 2459$	$2^3 \cdot 3^3 \cdot 23$	$2 \cdot 13 \cdot 193$	$2^2 \cdot 7 \cdot 181$
19	69	$61 \cdot 79$	$3^2 \cdot 541$	.....	.....	$3 \cdot 7 \cdot 239$	$37 \cdot 137$
20	70	$2^2 \cdot 5 \cdot 241$	$2 \cdot 5 \cdot 487$	$2^3 \cdot 3 \cdot 5 \cdot 41$	$2 \cdot 5 \cdot 7 \cdot 71$	$2^2 \cdot 5 \cdot 251$	$2 \cdot 3 \cdot 5 \cdot 13^2$
21	71	$3 \cdot 1607$	.....	$7 \cdot 19 \cdot 37$	$3 \cdot 1657$	.....	$11 \cdot 461$
22	72	$2 \cdot 2411$	$2^3 \cdot 3 \cdot 7 \cdot 29$	$2 \cdot 23 \cdot 107$	$2^2 \cdot 11 \cdot 113$	$2 \cdot 3^4 \cdot 31$	$2^4 \cdot 317$
23	73	$7 \cdot 13 \cdot 53$	$11 \cdot 443$	$3^2 \cdot 547$	.....	.....	$3 \cdot 19 \cdot 89$
24	74	$2^3 \cdot 3^2 \cdot 67$	$2 \cdot 2437$	$2^2 \cdot 1231$	$2 \cdot 3 \cdot 829$	$2^5 \cdot 157$	$2 \cdot 43 \cdot 59$
25	75	$5^2 \cdot 193$	$3 \cdot 5^3 \cdot 13$	$5^2 \cdot 197$	$5^2 \cdot 199$	$3 \cdot 5^2 \cdot 67$	$5^2 \cdot 7 \cdot 29$
26	76	$2 \cdot 19 \cdot 127$	$2^2 \cdot 23 \cdot 53$	$2 \cdot 3 \cdot 821$	$2^4 \cdot 311$	$2 \cdot 7 \cdot 359$	$2^2 \cdot 3^3 \cdot 47$
27	77	$3 \cdot 1609$	.....	$13 \cdot 379$	$3^2 \cdot 7 \cdot 79$	$11 \cdot 457$	.....
28	78	$2^2 \cdot 17 \cdot 71$	$2 \cdot 3^2 \cdot 271$	$2^6 \cdot 7 \cdot 11$	$2 \cdot 19 \cdot 131$	$2^2 \cdot 3 \cdot 419$	$2 \cdot 2539$
29	79	$11 \cdot 439$	$7 \cdot 17 \cdot 41$	$3 \cdot 31 \cdot 53$	$13 \cdot 383$	$47 \cdot 107$	$3 \cdot 1693$
30	80	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 23$	$2^4 \cdot 5 \cdot 61$	$2 \cdot 5 \cdot 17 \cdot 29$	$2^2 \cdot 3 \cdot 5 \cdot 83$	$2 \cdot 5 \cdot 503$	$2^3 \cdot 5 \cdot 127$
31	81	.....	$3 \cdot 1627$	.....	$17 \cdot 293$	$3^2 \cdot 13 \cdot 43$	.....
32	82	$2^5 \cdot 151$	$2 \cdot 2441$	$2^2 \cdot 3^2 \cdot 137$	$2 \cdot 47 \cdot 53$	$2^3 \cdot 17 \cdot 37$	$2 \cdot 3 \cdot 7 \cdot 11^2$
33	83	$3^3 \cdot 179$	$19 \cdot 257$	.....	$3 \cdot 11 \cdot 151$	$7 \cdot 719$	$13 \cdot 17 \cdot 23$
34	84	$2 \cdot 2417$	$2^2 \cdot 3 \cdot 11 \cdot 37$	$2 \cdot 2467$	$2^3 \cdot 7 \cdot 89$	$2 \cdot 3 \cdot 839$	$2^2 \cdot 31 \cdot 41$
35	85	$5 \cdot 967$	$5 \cdot 977$	$3 \cdot 5 \cdot 7 \cdot 47$	$5 \cdot 997$	$5 \cdot 19 \cdot 53$	$3^2 \cdot 5 \cdot 113$
36	86	$2^2 \cdot 3 \cdot 13 \cdot 31$	$2 \cdot 7 \cdot 349$	$2^3 \cdot 617$	$2 \cdot 3^2 \cdot 277$	$2^2 \cdot 1259$	$2 \cdot 2543$
37	87	$7 \cdot 691$	$3^3 \cdot 181$	.....	.....	$3 \cdot 23 \cdot 73$	.....
38	88	$2 \cdot 41 \cdot 59$	$2^3 \cdot 13 \cdot 47$	$2 \cdot 3 \cdot 823$	$2^2 \cdot 29 \cdot 43$	$2 \cdot 11 \cdot 229$	$2^5 \cdot 3 \cdot 53$
39	89	$3 \cdot 1613$	.....	$11 \cdot 449$	$3 \cdot 1663$	.....	$7 \cdot 727$
40	90	$2^3 \cdot 5 \cdot 11^2$	$2 \cdot 3 \cdot 5 \cdot 163$	$2^2 \cdot 5 \cdot 13 \cdot 19$	$2 \cdot 5 \cdot 499$	$2^4 \cdot 3^2 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 509$
41	91	$47 \cdot 103$	$67 \cdot 73$	$3^4 \cdot 61$	$7 \cdot 23 \cdot 31$	71^2	$3 \cdot 1697$
42	92	$2 \cdot 3^2 \cdot 269$	$2^2 \cdot 1223$	$2 \cdot 7 \cdot 353$	$2^7 \cdot 3 \cdot 13$	$2 \cdot 2521$	$2^2 \cdot 19 \cdot 67$
43	93	$29 \cdot 167$	$3 \cdot 7 \cdot 233$	.....	.....	$3 \cdot 41^2$	$11 \cdot 463$
44	94	$2^2 \cdot 7 \cdot 173$	$2 \cdot 2447$	$2^4 \cdot 3 \cdot 103$	$2 \cdot 11 \cdot 227$	$2^2 \cdot 13 \cdot 97$	$2 \cdot 3^2 \cdot 283$
45	95	$3 \cdot 5 \cdot 17 \cdot 19$	$5 \cdot 11 \cdot 89$	$5 \cdot 23 \cdot 43$	$3^3 \cdot 5 \cdot 37$	$5 \cdot 1009$	$5 \cdot 1019$
46	96	$2 \cdot 2423$	$2^5 \cdot 3^2 \cdot 17$	$2 \cdot 2473$	$2^2 \cdot 1249$	$2 \cdot 3 \cdot 29^2$	$2^3 \cdot 7^2 \cdot 13$
47	97	$37 \cdot 131$	$59 \cdot 83$	$3 \cdot 17 \cdot 97$	$19 \cdot 263$	$7^2 \cdot 103$	$3 \cdot 1699$
48	98	$2^4 \cdot 3 \cdot 101$	$2 \cdot 31 \cdot 79$	$2^2 \cdot 1237$	$2 \cdot 3 \cdot 7^2 \cdot 17$	$2^3 \cdot 631$	$2 \cdot 2549$
49	99	$13 \cdot 373$	$3 \cdot 23 \cdot 71$	$7^2 \cdot 101$	.....	$3^3 \cdot 21 \cdot 17$	.....
50	100	$2 \cdot 5^2 \cdot 97$	$2^2 \cdot 5^2 \cdot 7^2$	$2 \cdot 3^2 \cdot 5^2 \cdot 11$	$2^3 \cdot 5^4$	$2 \cdot 5^2 \cdot 101$	$2^2 \cdot 3 \cdot 5^2 \cdot 17$

Prime Numbers and Factors, 5100–5400.

From	To	5100 5150	5150 5200	5200 5250	5250 5300	5300 5350	5350 5400
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 17$	$2 \cdot 5^2 \cdot 103$	$2^4 \cdot 5^2 \cdot 13$	$2 \cdot 3 \cdot 5^3 \cdot 7$	$2^2 \cdot 5^2 \cdot 53$	$2 \cdot 5^2 \cdot 107$
1	51	.....	$3 \cdot 17 \cdot 101$	$7 \cdot 743$	$59 \cdot 89$	$3^2 \cdot 19 \cdot 31$	.....
2	52	$2 \cdot 2551$	$2^5 \cdot 7 \cdot 23$	$2 \cdot 3^2 \cdot 17^2$	$2^2 \cdot 13 \cdot 101$	$2 \cdot 11 \cdot 241$	$2^3 \cdot 3 \cdot 223$
3	53	$3^6 \cdot 7$	.....	$11^2 \cdot 43$	$3 \cdot 17 \cdot 103$	.....	$53 \cdot 101$
4	54	$2^4 \cdot 11 \cdot 29$	$2 \cdot 3 \cdot 859$	$2^2 \cdot 1301$	$2 \cdot 37 \cdot 71$	$2^3 \cdot 3 \cdot 13 \cdot 17$	$2 \cdot 2677$
5	55	$5 \cdot 1021$	$5 \cdot 1031$	$3 \cdot 5 \cdot 347$	$5 \cdot 1051$	$5 \cdot 1061$	$3^2 \cdot 5 \cdot 7 \cdot 17$
6	56	$2 \cdot 3 \cdot 23 \cdot 37$	$2^2 \cdot 1289$	$2 \cdot 19 \cdot 137$	$2^3 \cdot 3^2 \cdot 73$	$2 \cdot 7 \cdot 379$	$2^2 \cdot 13 \cdot 103$
7	57	.....	$3^3 \cdot 191$	$41 \cdot 127$	$7 \cdot 751$	$3 \cdot 29 \cdot 61$	$11 \cdot 487$
8	58	$2^2 \cdot 1277$	$2 \cdot 2579$	$2^3 \cdot 3 \cdot 7 \cdot 31$	$2 \cdot 11 \cdot 239$	$2^2 \cdot 1327$	$2 \cdot 3 \cdot 19 \cdot 47$
9	59	$3 \cdot 13 \cdot 131$	$7 \cdot 11 \cdot 67$	.....	$3 \cdot 1753$	.....	$23 \cdot 233$
10	60	$2 \cdot 5 \cdot 7 \cdot 73$	$2^3 \cdot 3 \cdot 5 \cdot 43$	$2 \cdot 5 \cdot 521$	$2^2 \cdot 5 \cdot 263$	$2 \cdot 3^2 \cdot 5 \cdot 59$	$2^4 \cdot 5 \cdot 67$
11	61	$19 \cdot 269$	$13 \cdot 397$	$3^3 \cdot 193$	.....	$47 \cdot 113$	$3 \cdot 1787$
12	62	$2^3 \cdot 3^2 \cdot 71$	$2 \cdot 29 \cdot 89$	$2^2 \cdot 1303$	$2 \cdot 3 \cdot 877$	$2^6 \cdot 83$	$2 \cdot 7 \cdot 383$
13	63	.....	$3 \cdot 1721$	$13 \cdot 401$	$19 \cdot 277$	$3 \cdot 7 \cdot 11 \cdot 23$	$31 \cdot 173$
14	64	$2 \cdot 2557$	$2^2 \cdot 1291$	$2 \cdot 3 \cdot 11 \cdot 79$	$2^4 \cdot 7 \cdot 47$	$2 \cdot 2657$	$2^2 \cdot 3^2 \cdot 149$
15	65	$3 \cdot 5 \cdot 11 \cdot 31$	$5 \cdot 1033$	$5 \cdot 7 \cdot 149$	$3^4 \cdot 5 \cdot 13$	$5 \cdot 1063$	$5 \cdot 29 \cdot 37$
16	66	$2^2 \cdot 1279$	$2 \cdot 3^2 \cdot 7 \cdot 41$	$2^5 \cdot 163$	$2 \cdot 2633$	$2^2 \cdot 3 \cdot 443$	$2 \cdot 2683$
17	67	$7 \cdot 17 \cdot 43$	.....	$3 \cdot 37 \cdot 47$	$23 \cdot 229$	$13 \cdot 409$	$3 \cdot 1789$
18	68	$2 \cdot 3 \cdot 853$	$2^4 \cdot 17 \cdot 19$	$2 \cdot 2609$	$2^2 \cdot 3 \cdot 439$	$2 \cdot 2659$	$2^3 \cdot 11 \cdot 61$
19	69	.....	$3 \cdot 1723$	$17 \cdot 307$	$11 \cdot 479$	$3^3 \cdot 197$	$7 \cdot 13 \cdot 59$
20	70	$2^{10} \cdot 5$	$2 \cdot 5 \cdot 11 \cdot 47$	$2^2 \cdot 3^2 \cdot 5 \cdot 29$	$2 \cdot 5 \cdot 17 \cdot 31$	$2^3 \cdot 5 \cdot 7 \cdot 19$	$2 \cdot 3 \cdot 5 \cdot 179$
21	71	$3^2 \cdot 569$	.....	$23 \cdot 227$	$3 \cdot 7 \cdot 251$	$17 \cdot 313$	$41 \cdot 131$
22	72	$2 \cdot 13 \cdot 197$	$2^2 \cdot 3 \cdot 431$	$2 \cdot 7 \cdot 373$	$2^3 \cdot 659$	$2 \cdot 3 \cdot 887$	$2^2 \cdot 17 \cdot 79$
23	73	$47 \cdot 109$	$7 \cdot 739$	$3 \cdot 1741$	.....	.....	$3^3 \cdot 199$
24	74	$2^2 \cdot 3 \cdot 7 \cdot 61$	$2 \cdot 13 \cdot 199$	$2^3 \cdot 653$	$2 \cdot 3^2 \cdot 293$	$2^2 \cdot 11^3$	$2 \cdot 2687$
25	75	$5^3 \cdot 41$	$3^2 \cdot 5^2 \cdot 23$	$5^2 \cdot 11 \cdot 19$	$5^2 \cdot 211$	$3 \cdot 5^2 \cdot 71$	$5^3 \cdot 43$
26	76	$2 \cdot 11 \cdot 233$	$2^3 \cdot 647$	$2 \cdot 3 \cdot 13 \cdot 67$	$2^2 \cdot 1319$	$2 \cdot 2663$	$2^8 \cdot 3 \cdot 7$
27	77	$3 \cdot 1709$	$31 \cdot 167$	.....	$3 \cdot 1759$	$7 \cdot 761$	$19 \cdot 283$
28	78	$2^3 \cdot 641$	$2 \cdot 3 \cdot 863$	$2^2 \cdot 1307$	$2 \cdot 7 \cdot 13 \cdot 29$	$2^4 \cdot 3^2 \cdot 37$	$2 \cdot 2689$
29	79	$23 \cdot 223$	.....	$3^2 \cdot 7 \cdot 83$	.....	73^2	$3 \cdot 11 \cdot 163$
30	80	$2 \cdot 3^3 \cdot 5 \cdot 19$	$2^2 \cdot 5 \cdot 7 \cdot 37$	$2 \cdot 5 \cdot 523$	$2^5 \cdot 3 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 13 \cdot 41$	$2^2 \cdot 5 \cdot 269$
31	81	$7 \cdot 733$	$3 \cdot 11 \cdot 157$	.....	.....	$3 \cdot 1777$	.....
32	82	$2^2 \cdot 1283$	$2 \cdot 2591$	$2^4 \cdot 3 \cdot 109$	$2 \cdot 19 \cdot 139$	$2^2 \cdot 31 \cdot 43$	$2 \cdot 3^2 \cdot 13 \cdot 23$
33	83	$3 \cdot 29 \cdot 59$	$71 \cdot 73$	.....	$3^2 \cdot 587$	.....	$7 \cdot 769$
34	84	$2 \cdot 17 \cdot 151$	$2^6 \cdot 3^4$	$2 \cdot 2617$	$2^2 \cdot 1321$	$2 \cdot 3 \cdot 7 \cdot 127$	$2^3 \cdot 673$
35	85	$5 \cdot 13 \cdot 79$	$5 \cdot 17 \cdot 61$	$3 \cdot 5 \cdot 349$	$5 \cdot 7 \cdot 151$	$5 \cdot 11 \cdot 97$	$3 \cdot 5 \cdot 359$
36	86	$2^4 \cdot 3 \cdot 107$	$2 \cdot 2593$	$2^2 \cdot 7 \cdot 11 \cdot 17$	$2 \cdot 3 \cdot 881$	$2^3 \cdot 23 \cdot 29$	$2 \cdot 2693$
37	87	$11 \cdot 467$	$3 \cdot 7 \cdot 13 \cdot 19$	.....	$17 \cdot 311$	$3^2 \cdot 593$	.....
38	88	$2 \cdot 7 \cdot 367$	$2^2 \cdot 1297$	$2 \cdot 3^3 \cdot 97$	$2^3 \cdot 661$	$2 \cdot 17 \cdot 157$	$2^2 \cdot 3 \cdot 449$
39	89	$3^2 \cdot 571$	.....	$13^2 \cdot 31$	$3 \cdot 41 \cdot 43$	$19 \cdot 281$	$17 \cdot 317$
40	90	$2^2 \cdot 5 \cdot 257$	$2 \cdot 3 \cdot 5 \cdot 173$	$2^3 \cdot 5 \cdot 131$	$2 \cdot 5 \cdot 23^2$	$2^2 \cdot 3 \cdot 5 \cdot 89$	$2 \cdot 5 \cdot 7^2 \cdot 11$
41	91	$53 \cdot 97$	$29 \cdot 179$	$3 \cdot 1747$	$11 \cdot 13 \cdot 37$	$7^2 \cdot 109$	$3^2 \cdot 599$
42	92	$2 \cdot 3 \cdot 857$	$2^3 \cdot 11 \cdot 59$	$2 \cdot 2621$	$2^2 \cdot 3^3 \cdot 7^2$	$2 \cdot 2671$	$2^4 \cdot 337$
43	93	$37 \cdot 139$	$3^2 \cdot 577$	$7^2 \cdot 107$	$67 \cdot 79$	$3 \cdot 13 \cdot 137$	.....
44	94	$2^3 \cdot 643$	$2 \cdot 7^2 \cdot 53$	$2^2 \cdot 3 \cdot 19 \cdot 23$	$2 \cdot 2647$	$2^5 \cdot 167$	$2 \cdot 3 \cdot 29 \cdot 31$
45	95	$3 \cdot 5 \cdot 7^3$	$5 \cdot 1039$	$5 \cdot 1049$	$3 \cdot 5 \cdot 353$	$5 \cdot 1069$	$5 \cdot 13 \cdot 83$
46	96	$2 \cdot 31 \cdot 83$	$2^2 \cdot 3 \cdot 433$	$2 \cdot 43 \cdot 61$	$2^4 \cdot 331$	$2 \cdot 3^5 \cdot 11$	$2^2 \cdot 19 \cdot 71$
47	97	.....	.....	$3^2 \cdot 11 \cdot 53$	.....	.....	$3 \cdot 7 \cdot 257$
48	98	$2^2 \cdot 3^2 \cdot 11 \cdot 13$	$2 \cdot 23 \cdot 113$	$2^7 \cdot 41$	$2 \cdot 3 \cdot 883$	$2^2 \cdot 7 \cdot 191$	$2 \cdot 2699$
49	99	$19 \cdot 271$	$3 \cdot 1733$	$29 \cdot 181$	$7 \cdot 757$	$3 \cdot 1783$	.....
50	100	$2 \cdot 5^2 \cdot 103$	$2^4 \cdot 5^2 \cdot 13$	$2 \cdot 3 \cdot 5^3 \cdot 7$	$2^2 \cdot 5^2 \cdot 53$	$2 \cdot 5^2 \cdot 107$	$2^3 \cdot 3^3 \cdot 5^2$

Prime Numbers and Factors, 5400–5700.

From	To	5400 5450	5450 5500	5500 5550	5550 5600	5600 5650	5650 5700
0	50	$2^3 \cdot 3^3 \cdot 5^2$	$2 \cdot 5^2 \cdot 109$	$2^2 \cdot 5^3 \cdot 11$	$2 \cdot 3 \cdot 5^2 \cdot 37$	$2^5 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 113$
1	51	11·491	3·23·79	.....	7·13·61	3·1867	.....
2	52	2·37·73	$2^2 \cdot 29 \cdot 47$	$2 \cdot 3 \cdot 7 \cdot 131$	$2^4 \cdot 347$	2·2801	$2^2 \cdot 3^2 \cdot 157$
3	53	3·1801	7·19·41	.....	$3^2 \cdot 617$	13·431	.....
4	54	$2^2 \cdot 7 \cdot 193$	$2 \cdot 3^3 \cdot 101$	$2^7 \cdot 43$	2·2777	$2^2 \cdot 3 \cdot 467$	2·11·257
5	55	5·23·47	5·1091	3·5·367	5·11·101	5·19·59	3·5·13·29
6	56	2·3·17·53	$2^4 \cdot 11 \cdot 31$	2·27·53	$2^2 \cdot 3 \cdot 463$	2·2803	$2^3 \cdot 7 \cdot 101$
7	57	.....	3·17·107	.....	.....	$3^2 \cdot 7 \cdot 89$	.....
8	58	$2^5 \cdot 13^2$	2·2729	$2^2 \cdot 3^4 \cdot 17$	2·7·397	$2^3 \cdot 701$	2·3·23·41
9	59	$3^2 \cdot 601$	53·103	7·787	3·17·109	71·79	.....
10	60	2·5·541	$2^2 \cdot 3 \cdot 5 \cdot 7 \cdot 13$	2·5·19·29	$2^3 \cdot 5 \cdot 139$	$2 \cdot 3 \cdot 5 \cdot 11 \cdot 17$	$2^2 \cdot 5 \cdot 283$
11	61	7·773	43·127	3·11·167	67·83	31·181	$3^2 \cdot 17 \cdot 37$
12	62	$2^2 \cdot 3 \cdot 11 \cdot 41$	2·2731	$2^3 \cdot 13 \cdot 53$	$2 \cdot 3^3 \cdot 103$	$2^2 \cdot 23 \cdot 61$	2·19·149
13	63	.....	$3^2 \cdot 607$	37·149	.....	3·1871	7·809
14	64	2·2707	$2^3 \cdot 683$	2·3·919	$2^2 \cdot 13 \cdot 107$	2·7·401	$2^5 \cdot 3 \cdot 59$
15	65	$3 \cdot 5 \cdot 19^2$	5·1093	5·1103	$3 \cdot 5 \cdot 7 \cdot 53$	5·1123	5·11·103
16	66	$2^3 \cdot 677$	2·3·911	$2^2 \cdot 7 \cdot 197$	$2 \cdot 11^2 \cdot 23$	$2^4 \cdot 3^3 \cdot 13$	2·2833
17	67	.....	7·11·71	$3^2 \cdot 613$	19·293	41·137	3·1889
18	68	$2 \cdot 3^2 \cdot 7 \cdot 43$	$2^2 \cdot 1367$	2·31·89	$2^6 \cdot 3 \cdot 29$	$2 \cdot 53^2$	$2^2 \cdot 13 \cdot 109$
19	69	.....	3·1823	.....	.....	3·1873	.....
20	70	$2^2 \cdot 5 \cdot 271$	2·5·547	$2^4 \cdot 3 \cdot 5 \cdot 23$	2·5·557	$2^2 \cdot 5 \cdot 281$	$2 \cdot 3^4 \cdot 5 \cdot 7$
21	71	3·13·139	.....	.....	$3^2 \cdot 619$	7·11·73	53·107
22	72	2·2711	$2^5 \cdot 3^2 \cdot 19$	2·11·251	$2^2 \cdot 7 \cdot 199$	2·3·937	$2^3 \cdot 709$
23	73	11·17·29	13·421	3·7·263	.....	.....	3·31·61
24	74	$2^4 \cdot 3 \cdot 113$	2·7·17·23	$2^2 \cdot 1381$	2·3·929	$2^3 \cdot 19 \cdot 37$	2·2837
25	75	$5^2 \cdot 7 \cdot 31$	$3 \cdot 5^2 \cdot 73$	$5^2 \cdot 13 \cdot 17$	$5^2 \cdot 223$	$3^2 \cdot 5^4$	$5^2 \cdot 227$
26	76	2·2713	$2^2 \cdot 37^2$	$2 \cdot 3^2 \cdot 307$	$2^3 \cdot 17 \cdot 41$	2·29·97	$2^2 \cdot 3 \cdot 11 \cdot 43$
27	77	$3^4 \cdot 67$	.....	.....	$3 \cdot 11 \cdot 13^2$	17·331	7·811
28	78	$2^2 \cdot 23 \cdot 59$	$2 \cdot 3 \cdot 11 \cdot 83$	$2^3 \cdot 691$	2·2789	$2^2 \cdot 3 \cdot 7 \cdot 67$	2·17·167
29	79	61·89	.....	3·19·97	7·797	13·433	$3^2 \cdot 631$
30	80	$2 \cdot 3 \cdot 5 \cdot 181$	$2^3 \cdot 5 \cdot 137$	2·5·7·79	$2^2 \cdot 3^2 \cdot 5 \cdot 31$	2·5·563	$2^4 \cdot 5 \cdot 71$
31	81	.....	$3^3 \cdot 7 \cdot 29$	.....	.....	3·1877	13·19·23
32	82	$2^3 \cdot 7 \cdot 97$	2·2741	$2^2 \cdot 3 \cdot 461$	2·2791	$2^9 \cdot 11$	2·3·947
33	83	3·1811	.....	11·503	3·1861	43·131	.....
34	84	2·11·13·19	$2^2 \cdot 3 \cdot 457$	2·2767	$2^4 \cdot 349$	$2 \cdot 3^2 \cdot 313$	$2^2 \cdot 7^2 \cdot 29$
35	85	5·1087	5·1097	$3^3 \cdot 5 \cdot 41$	5·1117	$5 \cdot 7^2 \cdot 23$	3·5·379
36	86	$2^2 \cdot 3^2 \cdot 151$	2·13·211	$2^5 \cdot 173$	$2 \cdot 3 \cdot 7^2 \cdot 19$	$2^2 \cdot 1409$	2·2843
37	87	.....	3·31·59	$7^2 \cdot 113$	37·151	3·1879	$11^2 \cdot 47$
38	88	2·2719	$2^4 \cdot 7^3$	2·3·13·71	$2^2 \cdot 11 \cdot 127$	2·2819	$2^3 \cdot 3^2 \cdot 79$
39	89	$3 \cdot 7^2 \cdot 37$	11·499	29·191	$3^5 \cdot 23$	.....	.....
40	90	$2^6 \cdot 5 \cdot 17$	$2 \cdot 3^2 \cdot 5 \cdot 61$	$2^2 \cdot 5 \cdot 277$	2·5·13·43	$2^3 \cdot 3 \cdot 5 \cdot 47$	2·5·569
41	91	.....	$17^2 \cdot 19$	3·1847	.....	.....	3·7·271
42	92	2·3·907	$2^2 \cdot 1373$	2·17·163	$2^3 \cdot 3 \cdot 233$	2·7·13·31	$2^2 \cdot 1423$
43	93	.....	3·1831	23·241	7·17·47	$3^3 \cdot 11 \cdot 19$	.....
44	94	$2^2 \cdot 1361$	2·41·67	$2^3 \cdot 3^2 \cdot 7 \cdot 11$	2·2797	$2^2 \cdot 17 \cdot 83$	2·3·13·73
45	95	$3^2 \cdot 5 \cdot 11^2$	5·7·157	5·1109	3·5·373	5·1129	5·17·67
46	96	2·7·389	$2^3 \cdot 3 \cdot 229$	2·47·59	$2^2 \cdot 1399$	2·3·941	$2^6 \cdot 89$
47	97	13·419	23·239	$3 \cdot 43^2$	29·193	.....	$3^3 \cdot 211$
48	98	$2^3 \cdot 3 \cdot 227$	2·2749	$2^2 \cdot 19 \cdot 73$	$2 \cdot 3^2 \cdot 311$	$2^4 \cdot 353$	2·7·11·37
49	99	.....	$3^2 \cdot 13 \cdot 47$	31·179	11·509	3·7·269	41·139
50	100	$2 \cdot 5^2 \cdot 109$	$2^2 \cdot 5^3 \cdot 11$	$2 \cdot 3 \cdot 5^2 \cdot 37$	$2^5 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 113$	$2^2 \cdot 3 \cdot 5^2 \cdot 19$

Prime Numbers and Factors, 5700–6000.

From	To	5700 5750	5750 5800	5800 5850	5850 5900	5900 5950	5950 6000
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 19$	$2 \cdot 5^3 \cdot 23$	$2^3 \cdot 5^2 \cdot 29$	$2 \cdot 3^2 \cdot 5^2 \cdot 13$	$2^2 \cdot 5^2 \cdot 59$	$2 \cdot 5^2 \cdot 7 \cdot 17$
1	51	.....	$3^4 \cdot 71$	....	.....	$3 \cdot 7 \cdot 281$	$11 \cdot 541$
2	52	$2 \cdot 2851$	$2^3 \cdot 719$	$2 \cdot 3 \cdot 967$	$2^2 \cdot 7 \cdot 11 \cdot 19$	$2 \cdot 13 \cdot 227$	$2^6 \cdot 3 \cdot 31$
3	53	$3 \cdot 1901$	$11 \cdot 523$	$7 \cdot 829$	$3 \cdot 1951$	.....	.....
4	54	$2^3 \cdot 23 \cdot 31$	$2 \cdot 3 \cdot 7 \cdot 137$	$2^2 \cdot 1451$	$2 \cdot 2927$	$2^4 \cdot 3^2 \cdot 41$	$2 \cdot 13 \cdot 229$
5	55	$5 \cdot 7 \cdot 163$	$5 \cdot 1151$	$3^3 \cdot 5 \cdot 43$	$5 \cdot 1171$	$5 \cdot 1181$	$3 \cdot 5 \cdot 397$
6	56	$2 \cdot 3^2 \cdot 317$	$2^2 \cdot 1439$	$2 \cdot 2903$	$2^5 \cdot 3 \cdot 61$	$2 \cdot 2953$	$2^2 \cdot 1489$
7	57	$13 \cdot 439$	$3 \cdot 19 \cdot 101$	.....	.....	$3 \cdot 11 \cdot 179$	$7 \cdot 23 \cdot 37$
8	58	$2^2 \cdot 1427$	$2 \cdot 2879$	$2^4 \cdot 3 \cdot 11^2$	$2 \cdot 29 \cdot 101$	$2^2 \cdot 7 \cdot 211$	$2 \cdot 3^2 \cdot 331$
9	59	$3 \cdot 11 \cdot 173$	$13 \cdot 443$	$37 \cdot 157$	$3^3 \cdot 7 \cdot 31$	$19 \cdot 311$	$59 \cdot 101$
10	60	$2 \cdot 5 \cdot 571$	$2^7 \cdot 3^2 \cdot 5$	$2 \cdot 5 \cdot 7 \cdot 83$	$2^2 \cdot 5 \cdot 293$	$2 \cdot 3 \cdot 5 \cdot 197$	$2^3 \cdot 5 \cdot 149$
11	61	.....	$7 \cdot 823$	$3 \cdot 13 \cdot 149$	.....	$23 \cdot 257$	$3 \cdot 1987$
12	62	$2^4 \cdot 3 \cdot 7 \cdot 17$	$2 \cdot 43 \cdot 67$	$2^2 \cdot 1453$	$2 \cdot 3 \cdot 977$	$2^3 \cdot 739$	$2 \cdot 11 \cdot 271$
13	63	$29 \cdot 197$	$3 \cdot 17 \cdot 113$	.....	$11 \cdot 13 \cdot 41$	$3^4 \cdot 73$	$67 \cdot 89$
14	64	$2 \cdot 2857$	$2^2 \cdot 11 \cdot 131$	$2 \cdot 3^2 \cdot 17 \cdot 19$	$2^3 \cdot 733$	$2 \cdot 2957$	$2^2 \cdot 3 \cdot 7 \cdot 71$
15	65	$3^2 \cdot 5 \cdot 127$	$5 \cdot 1153$	$5 \cdot 1163$	$3 \cdot 5 \cdot 17 \cdot 23$	$5 \cdot 7 \cdot 13^2$	$5 \cdot 1193$
16	66	$2^2 \cdot 1429$	$2 \cdot 3 \cdot 31^2$	$2^3 \cdot 727$	$2 \cdot 7 \cdot 419$	$2^2 \cdot 3 \cdot 17 \cdot 29$	$2 \cdot 19 \cdot 157$
17	67	.....	$73 \cdot 79$	$3 \cdot 7 \cdot 277$	.....	$61 \cdot 97$	$3^3 \cdot 13 \cdot 17$
18	68	$2 \cdot 3 \cdot 953$	$2^3 \cdot 7 \cdot 103$	$2 \cdot 2909$	$2^2 \cdot 3^2 \cdot 163$	$2 \cdot 11 \cdot 269$	$2^4 \cdot 373$
19	69	$7 \cdot 19 \cdot 43$	$3^2 \cdot 641$	$11 \cdot 23^2$	.....	$3 \cdot 1973$	$47 \cdot 127$
20	70	$2^3 \cdot 5 \cdot 11 \cdot 13$	$2 \cdot 5 \cdot 577$	$2^2 \cdot 3 \cdot 5 \cdot 97$	$2 \cdot 5 \cdot 587$	$2^5 \cdot 5 \cdot 37$	$2 \cdot 3 \cdot 5 \cdot 199$
21	71	$3 \cdot 1907$	$29 \cdot 199$	.....	$3 \cdot 19 \cdot 103$	$31 \cdot 191$	$7 \cdot 853$
22	72	$2 \cdot 2861$	$2^2 \cdot 3 \cdot 13 \cdot 37$	$2 \cdot 41 \cdot 71$	$2^4 \cdot 367$	$2 \cdot 3^2 \cdot 7 \cdot 47$	$2^2 \cdot 1493$
23	73	$59 \cdot 97$	$23 \cdot 251$	$3^2 \cdot 647$	$7 \cdot 839$	.....	$3 \cdot 11 \cdot 181$
24	74	$2^2 \cdot 3^3 \cdot 53$	$2 \cdot 2887$	$2^6 \cdot 7 \cdot 13$	$2 \cdot 3 \cdot 11 \cdot 89$	$2^2 \cdot 1481$	$2 \cdot 29 \cdot 103$
25	75	$5^2 \cdot 229$	$3 \cdot 5^2 \cdot 7 \cdot 11$	$5^2 \cdot 233$	$5^3 \cdot 47$	$3 \cdot 5^2 \cdot 79$	$5^2 \cdot 239$
26	76	$2 \cdot 7 \cdot 409$	$2^4 \cdot 19^2$	$2 \cdot 3 \cdot 971$	$2^2 \cdot 13 \cdot 113$	$2 \cdot 2963$	$2^3 \cdot 3^2 \cdot 83$
27	77	$3 \cdot 23 \cdot 83$	$53 \cdot 109$	.....	$3^2 \cdot 653$	.....	$43 \cdot 139$
28	78	$2^5 \cdot 179$	$2 \cdot 3^3 \cdot 107$	$2^2 \cdot 31 \cdot 47$	$2 \cdot 2939$	$2^3 \cdot 3 \cdot 13 \cdot 19$	$2 \cdot 7^2 \cdot 61$
29	79	$17 \cdot 337$	.....	$3 \cdot 29 \cdot 67$	....	$7^2 \cdot 11^2$	$3 \cdot 1993$
30	80	$2 \cdot 3 \cdot 5 \cdot 191$	$2^2 \cdot 5 \cdot 17^2$	$2 \cdot 5 \cdot 11 \cdot 53$	$2^3 \cdot 3 \cdot 5 \cdot 7^2$	$2 \cdot 5 \cdot 593$	$2^2 \cdot 5 \cdot 13 \cdot 23$
31	81	$11 \cdot 521$	$3 \cdot 41 \cdot 47$	$7^3 \cdot 17$	.....	$3^2 \cdot 659$	.....
32	82	$2^2 \cdot 1433$	$2 \cdot 7^2 \cdot 59$	$2^3 \cdot 3^6$	$2 \cdot 17 \cdot 173$	$2^2 \cdot 1483$	$2 \cdot 3 \cdot 997$
33	83	$3^2 \cdot 7^2 \cdot 13$	.....	$19 \cdot 307$	$3 \cdot 37 \cdot 53$	$17 \cdot 349$	$31 \cdot 193$
34	84	$2 \cdot 47 \cdot 61$	$2^3 \cdot 3 \cdot 241$	$2 \cdot 2917$	$2^2 \cdot 1471$	$2 \cdot 3 \cdot 23 \cdot 43$	$2^5 \cdot 11 \cdot 17$
35	85	$5 \cdot 31 \cdot 37$	$5 \cdot 13 \cdot 89$	$3 \cdot 5 \cdot 389$	$5 \cdot 11 \cdot 107$	$5 \cdot 1187$	$3^2 \cdot 5 \cdot 7 \cdot 19$
36	86	$2^3 \cdot 3 \cdot 239$	$2 \cdot 11 \cdot 263$	$2^2 \cdot 1459$	$2 \cdot 3^3 \cdot 109$	$2^4 \cdot 7 \cdot 53$	$2 \cdot 41 \cdot 73$
37	87	.....	$3^2 \cdot 643$	$13 \cdot 449$	$7 \cdot 29^2$	$3 \cdot 1979$	.....
38	88	$2 \cdot 19 \cdot 151$	$2^2 \cdot 1447$	$2 \cdot 3 \cdot 7 \cdot 139$	$2^8 \cdot 23$	$2 \cdot 2969$	$2^2 \cdot 3 \cdot 499$
39	89	$3 \cdot 1913$	$7 \cdot 827$	.....	$3 \cdot 13 \cdot 151$	.....	$53 \cdot 113$
40	90	$2^2 \cdot 5 \cdot 7 \cdot 41$	$2 \cdot 3 \cdot 5 \cdot 193$	$2^4 \cdot 5 \cdot 73$	$2 \cdot 5 \cdot 19 \cdot 31$	$2^2 \cdot 3^3 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 599$
41	91	.....	.....	$3^2 \cdot 11 \cdot 59$	$43 \cdot 137$	$13 \cdot 457$	$3 \cdot 1997$
42	92	$2 \cdot 3^2 \cdot 11 \cdot 29$	$2^5 \cdot 181$	$2 \cdot 23 \cdot 127$	$2^2 \cdot 3 \cdot 491$	$2 \cdot 2971$	$2^3 \cdot 7 \cdot 107$
43	93	.....	$3 \cdot 1931$	.....	$71 \cdot 83$	$3 \cdot 7 \cdot 283$	$13 \cdot 461$
44	94	$2^4 \cdot 359$	$2 \cdot 2897$	$2^2 \cdot 3 \cdot 487$	$2 \cdot 7 \cdot 421$	$2^3 \cdot 743$	$2 \cdot 3^4 \cdot 37$
45	95	$3 \cdot 5 \cdot 383$	$5 \cdot 19 \cdot 61$	$5 \cdot 7 \cdot 167$	$3^2 \cdot 5 \cdot 131$	$5 \cdot 29 \cdot 41$	$5 \cdot 11 \cdot 109$
46	96	$2 \cdot 13^2 \cdot 17$	$2^2 \cdot 3^2 \cdot 7 \cdot 23$	$2 \cdot 37 \cdot 79$	$2^3 \cdot 11 \cdot 67$	$2 \cdot 3 \cdot 991$	$2^2 \cdot 1499$
47	97	$7 \cdot 821$	$11 \cdot 17 \cdot 31$	$3 \cdot 1949$	.....	$19 \cdot 313$	$3 \cdot 1999$
48	98	$2^2 \cdot 3 \cdot 479$	$2 \cdot 13 \cdot 223$	$2^3 \cdot 17 \cdot 43$	$2 \cdot 3 \cdot 983$	$2^2 \cdot 1487$	$2 \cdot 2999$
49	99	.....	$3 \cdot 1933$	.....	$17 \cdot 347$	$3^2 \cdot 661$	$7 \cdot 857$
50	100	$2 \cdot 5^3 \cdot 23$	$2^3 \cdot 5^2 \cdot 29$	$2 \cdot 3^2 \cdot 5^2 \cdot 13$	$2^2 \cdot 5^2 \cdot 59$	$2 \cdot 5^2 \cdot 7 \cdot 17$	$2^4 \cdot 3 \cdot 5^3$

Prime Numbers and Factors, 6000–6300.

From	To	6000 6050	6050 6100	6100 6150	6150 6200	6200 6250	6250 6300
0	50	$2^4 \cdot 3 \cdot 5^3$	$2 \cdot 5^2 \cdot 11^2$	$2^2 \cdot 5^2 \cdot 61$	$2 \cdot 3 \cdot 5^2 \cdot 41$	$2^3 \cdot 5^2 \cdot 31$	$2 \cdot 5^5$
1	51	$17 \cdot 353$	$3 \cdot 2017$	.....	.....	$3^2 \cdot 13 \cdot 53$	$7 \cdot 19 \cdot 47$
2	52	$2 \cdot 3001$	$2^2 \cdot 17 \cdot 89$	$2 \cdot 3^3 \cdot 113$	$2^3 \cdot 769$	$2 \cdot 7 \cdot 443$	$2^2 \cdot 3 \cdot 521$
3	53	$3^2 \cdot 23 \cdot 29$	.....	$17 \cdot 359$	$3 \cdot 7 \cdot 293$	.....	$13^2 \cdot 37$
4	54	$2^2 \cdot 19 \cdot 79$	$2 \cdot 3 \cdot 1009$	$2^3 \cdot 7 \cdot 109$	$2 \cdot 17 \cdot 181$	$2^2 \cdot 3 \cdot 11 \cdot 47$	$2 \cdot 53 \cdot 59$
5	55	$5 \cdot 1201$	$5 \cdot 7 \cdot 173$	$3 \cdot 5 \cdot 11 \cdot 37$	$5 \cdot 1231$	$5 \cdot 17 \cdot 73$	$3^2 \cdot 5 \cdot 139$
6	56	$2 \cdot 3 \cdot 7 \cdot 11 \cdot 13$	$2^3 \cdot 757$	$2 \cdot 43 \cdot 71$	$2^2 \cdot 3^4 \cdot 19$	$2 \cdot 29 \cdot 107$	$2^4 \cdot 17 \cdot 23$
7	57	.....	$3^2 \cdot 673$	$31 \cdot 197$	$47 \cdot 131$	$3 \cdot 2069$	.....
8	58	$2^3 \cdot 751$	$2 \cdot 13 \cdot 233$	$2^2 \cdot 3 \cdot 509$	$2 \cdot 3079$	$2^6 \cdot 97$	$2 \cdot 3 \cdot 7 \cdot 149$
9	59	$3 \cdot 2003$	$73 \cdot 83$	$41 \cdot 149$	$3 \cdot 2053$	$7 \cdot 887$	$11 \cdot 569$
10	60	$2 \cdot 5 \cdot 601$	$2^2 \cdot 3 \cdot 5 \cdot 101$	$2 \cdot 5 \cdot 13 \cdot 47$	$2^4 \cdot 5 \cdot 7 \cdot 11$	$2 \cdot 3^3 \cdot 5 \cdot 23$	$2^2 \cdot 5 \cdot 313$
11	61	.....	$11 \cdot 19 \cdot 29$	$3^2 \cdot 7 \cdot 97$	$61 \cdot 101$	.....	$3 \cdot 2087$
12	62	$2^2 \cdot 3^2 \cdot 167$	$2 \cdot 7 \cdot 433$	$2^5 \cdot 191$	$2 \cdot 3 \cdot 13 \cdot 79$	$2^2 \cdot 1553$	$2 \cdot 31 \cdot 101$
13	63	$7 \cdot 859$	$3 \cdot 43 \cdot 47$	.....	.....	$3 \cdot 19 \cdot 109$	.....
14	64	$2 \cdot 31 \cdot 97$	$2^4 \cdot 379$	$2 \cdot 3 \cdot 1019$	$2^2 \cdot 23 \cdot 67$	$2 \cdot 13 \cdot 239$	$2^3 \cdot 3^3 \cdot 29$
15	65	$3 \cdot 5 \cdot 401$	$5 \cdot 1213$	$5 \cdot 1223$	$3^2 \cdot 5 \cdot 137$	$5 \cdot 11 \cdot 113$	$5 \cdot 7 \cdot 179$
16	66	$2^7 \cdot 47$	$2 \cdot 3^2 \cdot 337$	$2^2 \cdot 11 \cdot 139$	$2 \cdot 3083$	$2^3 \cdot 3 \cdot 7 \cdot 37$	$2 \cdot 13 \cdot 241$
17	67	$11 \cdot 547$	.....	$3 \cdot 2039$	$7 \cdot 881$	.....	$3 \cdot 2089$
18	68	$2 \cdot 3 \cdot 17 \cdot 59$	$2^2 \cdot 37 \cdot 41$	$2 \cdot 7 \cdot 19 \cdot 23$	$2^3 \cdot 3 \cdot 257$	$2 \cdot 3109$	$2^2 \cdot 1567$
19	69	$13 \cdot 463$	$3 \cdot 7 \cdot 17^2$	$29 \cdot 211$	$31 \cdot 199$	$3^2 \cdot 691$	.....
20	70	$2^2 \cdot 5 \cdot 7 \cdot 43$	$2 \cdot 5 \cdot 607$	$2^3 \cdot 3^2 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 617$	$2^2 \cdot 5 \cdot 311$	$2 \cdot 3 \cdot 5 \cdot 11 \cdot 19$
21	71	$3^3 \cdot 223$	$13 \cdot 467$	.....	$3 \cdot 11^2 \cdot 17$	.....	.....
22	72	$2 \cdot 3011$	$2^3 \cdot 3 \cdot 11 \cdot 23$	$2 \cdot 3061$	$2^2 \cdot 1543$	$2 \cdot 3 \cdot 17 \cdot 61$	$2^7 \cdot 7^2$
23	73	$19 \cdot 317$	.....	$3 \cdot 13 \cdot 157$	.....	$7^2 \cdot 127$	$3^2 \cdot 17 \cdot 41$
24	74	$2^3 \cdot 3 \cdot 251$	$2 \cdot 3037$	$2^2 \cdot 1531$	$2 \cdot 3^2 \cdot 7^3$	$2^4 \cdot 389$	$2 \cdot 3137$
25	75	$5^2 \cdot 241$	$3^5 \cdot 5^2$	$5^3 \cdot 7^2$	$5^2 \cdot 13 \cdot 19$	$3 \cdot 5^2 \cdot 83$	$5^2 \cdot 251$
26	76	$2 \cdot 23 \cdot 131$	$2^2 \cdot 7^2 \cdot 31$	$2 \cdot 3 \cdot 1021$	$2^5 \cdot 193$	$2 \cdot 11 \cdot 283$	$2^2 \cdot 3 \cdot 523$
27	77	$3 \cdot 7^2 \cdot 41$	$59 \cdot 103$	$11 \cdot 557$	$3 \cdot 29 \cdot 71$	$13 \cdot 479$	.....
28	78	$2^2 \cdot 11 \cdot 137$	$2 \cdot 3 \cdot 1013$	$2^4 \cdot 383$	$2 \cdot 3089$	$2^2 \cdot 3^2 \cdot 173$	$2 \cdot 43 \cdot 73$
29	79	.....	.....	$3^3 \cdot 227$	$37 \cdot 167$	.....	$3 \cdot 7 \cdot 13 \cdot 23$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 67$	$2^6 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 613$	$2^2 \cdot 3 \cdot 5 \cdot 103$	$2 \cdot 5 \cdot 7 \cdot 89$	$2^3 \cdot 5 \cdot 157$
31	81	$37 \cdot 163$	$3 \cdot 2027$	.....	$7 \cdot 883$	$3 \cdot 31 \cdot 67$	$11 \cdot 571$
32	82	$2^4 \cdot 13 \cdot 29$	$2 \cdot 3041$	$2^2 \cdot 3 \cdot 7 \cdot 73$	$2 \cdot 11 \cdot 281$	$2^3 \cdot 19 \cdot 41$	$2 \cdot 3^2 \cdot 349$
33	83	$3 \cdot 2011$	$7 \cdot 11 \cdot 79$	.....	$3^3 \cdot 229$	$23 \cdot 271$	$61 \cdot 103$
34	84	$2 \cdot 7 \cdot 431$	$2^2 \cdot 3^2 \cdot 13^2$	$2 \cdot 3067$	$2^3 \cdot 773$	$2 \cdot 3 \cdot 1039$	$2^2 \cdot 1571$
35	85	$5 \cdot 17 \cdot 71$	$5 \cdot 1217$	$3 \cdot 5 \cdot 409$	$5 \cdot 1237$	$5 \cdot 29 \cdot 43$	$3 \cdot 5 \cdot 419$
36	86	$2^2 \cdot 3 \cdot 503$	$2 \cdot 17 \cdot 179$	$2^3 \cdot 13 \cdot 59$	$2 \cdot 3 \cdot 1031$	$2^2 \cdot 1559$	$2 \cdot 7 \cdot 449$
37	87	.....	$3 \cdot 2029$	$17 \cdot 19^2$	$23 \cdot 269$	$3^4 \cdot 7 \cdot 11$	.....
38	88	$2 \cdot 3019$	$2^3 \cdot 761$	$2 \cdot 3^2 \cdot 11 \cdot 31$	$2^2 \cdot 7 \cdot 13 \cdot 17$	$2 \cdot 3119$	$2^4 \cdot 3 \cdot 131$
39	89	$3^2 \cdot 11 \cdot 61$	.....	$7 \cdot 877$	$3 \cdot 2063$	$17 \cdot 367$	$19 \cdot 331$
40	90	$2^3 \cdot 5 \cdot 151$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 29$	$2^2 \cdot 5 \cdot 307$	$2 \cdot 5 \cdot 619$	$2^5 \cdot 3 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 17 \cdot 37$
41	91	$7 \cdot 863$	.....	$3 \cdot 23 \cdot 89$	$41 \cdot 151$	79^2	$3^3 \cdot 233$
42	92	$2 \cdot 3 \cdot 19 \cdot 53$	$2^2 \cdot 1523$	$2 \cdot 37 \cdot 83$	$2^4 \cdot 3^2 \cdot 43$	$2 \cdot 3121$	$2^2 \cdot 11^2 \cdot 13$
43	93	.....	$3^2 \cdot 677$	.....	$11 \cdot 563$	$3 \cdot 2081$	$7 \cdot 29 \cdot 31$
44	94	$2^2 \cdot 1511$	$2 \cdot 11 \cdot 277$	$2^{11} \cdot 3$	$2 \cdot 19 \cdot 163$	$2^2 \cdot 7 \cdot 223$	$2 \cdot 3 \cdot 1049$
45	95	$3 \cdot 5 \cdot 13 \cdot 31$	$5 \cdot 23 \cdot 53$	$5 \cdot 1229$	$3 \cdot 5 \cdot 7 \cdot 59$	$5 \cdot 1249$	$5 \cdot 1259$
46	96	$2 \cdot 3023$	$2^4 \cdot 3 \cdot 127$	$2 \cdot 7 \cdot 439$	$2^2 \cdot 1549$	$2 \cdot 3^2 \cdot 347$	$2^3 \cdot 787$
47	97	.....	$7 \cdot 13 \cdot 67$	$3^2 683$	.....	.....	$3 \cdot 2099$
48	98	$2^5 \cdot 3^3 \cdot 7$	$2 \cdot 3049$	$2^2 \cdot 29 \cdot 53$	$2 \cdot 3 \cdot 1033$	$2^3 \cdot 11 \cdot 71$	$2 \cdot 47 \cdot 67$
49	99	$23 \cdot 263$	$3 \cdot 19 \cdot 107$	$11 \cdot 13 \cdot 43$	.....	$3 \cdot 2083$	.....
50	100	$2 \cdot 5^2 \cdot 11^2$	$2^2 \cdot 5^2 \cdot 61$	$2 \cdot 3 \cdot 5^2 \cdot 41$	$2^3 \cdot 5^2 \cdot 31$	$2 \cdot 5^5$	$2^2 \cdot 3^2 \cdot 5^2 \cdot 7$

Prime Numbers and Factors, 6300–6600.

From	To	6300	6350	6400	6450	6500	6550
		6350	6400	6450	6500	6550	6600
0	50	$2^2 \cdot 3^2 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 127$	$2^8 \cdot 5^2$	$2 \cdot 3 \cdot 5^2 \cdot 43$	$2^2 \cdot 5^3 \cdot 13$	$2 \cdot 5^2 \cdot 131$
1	51	.....	$3 \cdot 29 \cdot 73$	$37 \cdot 173$	.....	$3 \cdot 11 \cdot 197$	.....
2	52	$2 \cdot 23 \cdot 137$	$2^4 \cdot 397$	$2 \cdot 3 \cdot 11 \cdot 97$	$2^2 \cdot 1613$	$2 \cdot 3251$	$2^3 \cdot 3^2 \cdot 7 \cdot 13$
3	53	$3 \cdot 11 \cdot 191$	.....	$19 \cdot 337$	$3^3 \cdot 239$	$7 \cdot 929$	.....
4	54	$2^5 \cdot 197$	$2 \cdot 3^2 \cdot 353$	$2^2 \cdot 1601$	$2 \cdot 7 \cdot 461$	$2^3 \cdot 3 \cdot 271$	$2 \cdot 29 \cdot 113$
5	55	$5 \cdot 13 \cdot 97$	$5 \cdot 31 \cdot 41$	$3 \cdot 5 \cdot 7 \cdot 61$	$5 \cdot 1291$	$5 \cdot 1301$	$3 \cdot 5 \cdot 19 \cdot 23$
6	56	$2 \cdot 3 \cdot 1051$	$2^2 \cdot 7 \cdot 227$	$2 \cdot 3203$	$2^3 \cdot 3 \cdot 269$	$2 \cdot 3253$	$2^2 \cdot 11 \cdot 149$
7	57	$7 \cdot 17 \cdot 53$	$3 \cdot 13 \cdot 163$	$43 \cdot 149$	$11 \cdot 587$	$3^3 \cdot 241$	$79 \cdot 83$
8	58	$2^2 \cdot 19 \cdot 83$	$2 \cdot 11 \cdot 17^2$	$2^3 \cdot 3^2 \cdot 89$	$2 \cdot 3229$	$2^2 \cdot 1627$	$2 \cdot 3 \cdot 1093$
9	59	$3^2 \cdot 701$	.....	$13 \cdot 17 \cdot 29$	$3 \cdot 2153$	$23 \cdot 283$	$7 \cdot 937$
10	60	$2 \cdot 5 \cdot 631$	$2^3 \cdot 3 \cdot 5 \cdot 53$	$2 \cdot 5 \cdot 641$	$2^2 \cdot 5 \cdot 17 \cdot 19$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 31$	$2^5 \cdot 5 \cdot 41$
11	61	.....	.....	$3 \cdot 2137$	$7 \cdot 13 \cdot 71$	$17 \cdot 383$	3^8
12	62	$2^3 \cdot 3 \cdot 263$	$2 \cdot 3181$	$2^2 \cdot 7 \cdot 229$	$2 \cdot 3^2 \cdot 359$	$2^4 \cdot 11 \cdot 37$	$2 \cdot 17 \cdot 193$
13	63	$59 \cdot 107$	$3^2 \cdot 7 \cdot 101$	$11^2 \cdot 53$	$23 \cdot 281$	$3 \cdot 13 \cdot 167$	.....
14	64	$2 \cdot 7 \cdot 11 \cdot 41$	$2^2 \cdot 37 \cdot 43$	$2 \cdot 3 \cdot 1069$	$2^6 \cdot 101$	$2 \cdot 3257$	$2^2 \cdot 3 \cdot 547$
15	65	$3 \cdot 5 \cdot 421$	$5 \cdot 19 \cdot 67$	$5 \cdot 1283$	$3 \cdot 5 \cdot 431$	$5 \cdot 1303$	$5 \cdot 13 \cdot 101$
16	66	$2^2 \cdot 1579$	$2 \cdot 3 \cdot 1061$	$2^4 \cdot 401$	$2 \cdot 53 \cdot 61$	$2^2 \cdot 3^2 \cdot 181$	$2 \cdot 7^2 \cdot 67$
17	67	.....	.....	$3^2 \cdot 23 \cdot 31$	$29 \cdot 223$	$7^3 \cdot 19$	$3 \cdot 11 \cdot 199$
18	68	$2 \cdot 3^5 \cdot 13$	$2^5 \cdot 199$	$2 \cdot 3209$	$2^2 \cdot 3 \cdot 7^2 \cdot 11$	$2 \cdot 3259$	$2^3 \cdot 821$
19	69	$71 \cdot 89$	$3 \cdot 11 \cdot 193$	$7^2 \cdot 131$	.....	$3 \cdot 41 \cdot 53$	.....
20	70	$2^4 \cdot 5 \cdot 79$	$2 \cdot 5 \cdot 7^2 \cdot 13$	$2^2 \cdot 3 \cdot 5 \cdot 107$	$2 \cdot 5 \cdot 647$	$2^3 \cdot 5 \cdot 163$	$2 \cdot 3^2 \cdot 5 \cdot 73$
21	71	$3 \cdot 7^2 \cdot 43$	$23 \cdot 277$	.....	$3^2 \cdot 719$	.....	.....
22	72	$2 \cdot 29 \cdot 109$	$2^2 \cdot 3^3 \cdot 59$	$2 \cdot 13^2 \cdot 19$	$2^3 \cdot 809$	$2 \cdot 3 \cdot 1087$	$2^2 \cdot 31 \cdot 53$
23	73	.....	.....	$3 \cdot 2141$	.....	$11 \cdot 593$	$3 \cdot 7 \cdot 313$
24	74	$2^2 \cdot 3 \cdot 17 \cdot 31$	$2 \cdot 3187$	$2^3 \cdot 11 \cdot 73$	$2 \cdot 3 \cdot 13 \cdot 83$	$2^2 \cdot 7 \cdot 233$	$2 \cdot 19 \cdot 173$
25	75	$5^2 \cdot 11 \cdot 23$	$3 \cdot 5^3 \cdot 17$	$5^2 \cdot 257$	$5^2 \cdot 7 \cdot 37$	$3^2 \cdot 5^2 \cdot 29$	$5^2 \cdot 263$
26	76	$2 \cdot 3163$	$2^3 \cdot 797$	$2 \cdot 3^3 \cdot 7 \cdot 17$	$2^2 \cdot 1619$	$2 \cdot 13 \cdot 251$	$2^4 \cdot 3 \cdot 137$
27	77	$3^2 \cdot 19 \cdot 37$	$7 \cdot 911$	.....	$3 \cdot 17 \cdot 127$	$61 \cdot 107$	.....
28	78	$2^3 \cdot 7 \cdot 113$	$2 \cdot 3 \cdot 1063$	$2^2 \cdot 1607$	$2 \cdot 41 \cdot 79$	$2^7 \cdot 3 \cdot 17$	$2 \cdot 11 \cdot 13 \cdot 23$
29	79	.....	.....	$3 \cdot 2143$	$11 \cdot 19 \cdot 31$	.....	$3^2 \cdot 17 \cdot 43$
30	80	$2 \cdot 3 \cdot 5 \cdot 211$	$2^2 \cdot 5 \cdot 11 \cdot 29$	$2 \cdot 5 \cdot 643$	$2^4 \cdot 3^4 \cdot 5$	$2 \cdot 5 \cdot 653$	$2^2 \cdot 5 \cdot 7 \cdot 47$
31	81	$13 \cdot 487$	$3^2 \cdot 709$	$59 \cdot 109$	.....	$3 \cdot 7 \cdot 311$	.....
32	82	$2^2 \cdot 1583$	$2 \cdot 3191$	$2^5 \cdot 3 \cdot 67$	$2 \cdot 7 \cdot 463$	$2^2 \cdot 23 \cdot 71$	$2 \cdot 3 \cdot 1097$
33	83	$3 \cdot 2111$	$13 \cdot 491$	$7 \cdot 919$	$3 \cdot 2161$	$47 \cdot 139$	$29 \cdot 227$
34	84	$2 \cdot 3167$	$2^4 \cdot 3 \cdot 7 \cdot 19$	$2 \cdot 3217$	$2^2 \cdot 1621$	$2 \cdot 3^3 \cdot 11^2$	$2^3 \cdot 823$
35	85	$5 \cdot 7 \cdot 181$	$5 \cdot 1277$	$3^2 \cdot 5 \cdot 11 \cdot 13$	$5 \cdot 1297$	$5 \cdot 1307$	$3 \cdot 5 \cdot 439$
36	86	$2^6 \cdot 3^2 \cdot 11$	$2 \cdot 31 \cdot 103$	$2^2 \cdot 1609$	$2 \cdot 3 \cdot 23 \cdot 47$	$2^3 \cdot 19 \cdot 43$	$2 \cdot 37 \cdot 89$
37	87	.....	$3 \cdot 2129$	$41 \cdot 157$	$13 \cdot 499$	$3 \cdot 2179$	$7 \cdot 941$
38	88	$2 \cdot 3169$	$2^2 \cdot 1597$	$2 \cdot 3 \cdot 29 \cdot 37$	$2^3 \cdot 811$	$2 \cdot 7 \cdot 467$	$2^2 \cdot 3^3 \cdot 61$
39	89	$3 \cdot 2113$	.....	$47 \cdot 137$	$3^2 \cdot 7 \cdot 103$	$13 \cdot 503$	$11 \cdot 599$
40	90	$2^2 \cdot 5 \cdot 317$	$2 \cdot 3^2 \cdot 5 \cdot 71$	$2^3 \cdot 5 \cdot 7 \cdot 23$	$2 \cdot 5 \cdot 11 \cdot 59$	$2^2 \cdot 3 \cdot 5 \cdot 109$	$2 \cdot 5 \cdot 659$
41	91	$17 \cdot 373$	$7 \cdot 11 \cdot 83$	$3 \cdot 19 \cdot 113$	.....	$31 \cdot 211$	$3 \cdot 13^3$
42	92	$2 \cdot 3 \cdot 7 \cdot 151$	$2^3 \cdot 17 \cdot 47$	$2 \cdot 3221$	$2^2 \cdot 3 \cdot 541$	$2 \cdot 3271$	$2^6 \cdot 103$
43	93	.....	$3 \cdot 2131$	$17 \cdot 379$	$43 \cdot 151$	$3^2 \cdot 727$	$19 \cdot 347$
44	94	$2^3 \cdot 13 \cdot 61$	$2 \cdot 23 \cdot 139$	$2^2 \cdot 3^2 \cdot 179$	$2 \cdot 17 \cdot 191$	$2^4 \cdot 409$	$2 \cdot 3 \cdot 7 \cdot 157$
45	95	$3^3 \cdot 5 \cdot 47$	$5 \cdot 1279$	$5 \cdot 1289$	$3 \cdot 5 \cdot 433$	$5 \cdot 7 \cdot 11 \cdot 17$	$5 \cdot 1319$
46	96	$2 \cdot 19 \cdot 167$	$2^2 \cdot 3 \cdot 13 \cdot 41$	$2 \cdot 11 \cdot 293$	$2^5 \cdot 7 \cdot 29$	$2 \cdot 3 \cdot 1091$	$2^2 \cdot 17 \cdot 97$
47	97	$11 \cdot 577$	.....	$3 \cdot 7 \cdot 307$	$73 \cdot 89$	.....	$3^2 \cdot 733$
48	98	$2^2 \cdot 3 \cdot 23^2$	$2 \cdot 7 \cdot 457$	$2^4 \cdot 13 \cdot 31$	$2 \cdot 3^2 \cdot 19^2$	$2^2 \cdot 1637$	$2 \cdot 3299$
49	99	$7 \cdot 907$	$3^4 \cdot 79$	.....	$67 \cdot 97$	$3 \cdot 37 \cdot 59$	.....
50	100	$2 \cdot 5^2 \cdot 127$	$2^8 \cdot 5^2$	$2 \cdot 3 \cdot 5^2 \cdot 43$	$2^2 \cdot 5^3 \cdot 13$	$2 \cdot 5^2 \cdot 131$	$2^3 \cdot 3 \cdot 5^2 \cdot 11$

Prime Numbers and Factors, 6600–6900.

From		6600	6650	6700	6750	6800	6850
To		6650	6700	6750	6800	6850	6900
0	50	$2^3 \cdot 3 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 7 \cdot 19$	$2^2 \cdot 5^2 \cdot 67$	$2 \cdot 3^3 \cdot 5^3$	$2^4 \cdot 5^2 \cdot 17$	$2 \cdot 5^2 \cdot 137$
1	51	$7 \cdot 23 \cdot 41$	$3^2 \cdot 739$	.....	$43 \cdot 157$	$3 \cdot 2267$	$13 \cdot 17 \cdot 31$
2	52	$2 \cdot 3301$	$2^2 \cdot 1663$	$2 \cdot 3 \cdot 1117$	$2^5 \cdot 211$	$2 \cdot 19 \cdot 179$	$2^2 \cdot 3 \cdot 571$
3	53	$3 \cdot 31 \cdot 71$	.....	.....	$3 \cdot 2251$	.....	$7 \cdot 11 \cdot 89$
4	54	$2^2 \cdot 13 \cdot 127$	$2 \cdot 3 \cdot 1109$	$2^4 \cdot 419$	$2 \cdot 11 \cdot 307$	$2^2 \cdot 3^5 \cdot 7$	$2 \cdot 23 \cdot 149$
5	55	$5 \cdot 1321$	$5 \cdot 11^3$	$3^2 \cdot 5 \cdot 149$	$5 \cdot 7 \cdot 193$	$5 \cdot 1361$	$3 \cdot 5 \cdot 457$
6	56	$2 \cdot 3^2 \cdot 367$	$2^9 \cdot 13$	$2 \cdot 7 \cdot 479$	$2^2 \cdot 3 \cdot 563$	$2 \cdot 41 \cdot 83$	$2^3 \cdot 857$
7	57	.....	$3 \cdot 7 \cdot 317$	$19 \cdot 353$	$29 \cdot 233$	$3 \cdot 2269$	.....
8	58	$2^4 \cdot 7 \cdot 59$	$2 \cdot 3329$	$2^2 \cdot 3 \cdot 13 \cdot 43$	$2 \cdot 31 \cdot 109$	$2^3 \cdot 23 \cdot 37$	$2 \cdot 3^3 \cdot 127$
9	59	$3 \cdot 2203$	.....	.....	$3^2 \cdot 751$	$11 \cdot 619$	19^3
10	60	$2 \cdot 5 \cdot 661$	$2^2 \cdot 3^2 \cdot 5 \cdot 37$	$2 \cdot 5 \cdot 11 \cdot 61$	$2^3 \cdot 5 \cdot 13^2$	$2 \cdot 3 \cdot 5 \cdot 227$	$2^2 \cdot 5 \cdot 7^3$
11	61	$11 \cdot 601$	.....	$3 \cdot 2237$	.....	$7^2 \cdot 139$	$3 \cdot 2287$
12	62	$2^2 \cdot 3 \cdot 19 \cdot 29$	$2 \cdot 3331$	$2^3 \cdot 839$	$2 \cdot 3 \cdot 7^2 \cdot 23$	$2^2 \cdot 13 \cdot 131$	$2 \cdot 47 \cdot 73$
13	63	$17 \cdot 389$	$3 \cdot 2221$	$7^2 \cdot 137$	.....	$3^2 \cdot 757$	.....
14	64	$2 \cdot 3307$	$2^3 \cdot 7^2 \cdot 17$	$2 \cdot 3^2 \cdot 373$	$2^2 \cdot 19 \cdot 89$	$2 \cdot 3407$	$2^4 \cdot 3 \cdot 11 \cdot 13$
15	65	$3^3 \cdot 5 \cdot 7^2$	$5 \cdot 31 \cdot 43$	$5 \cdot 17 \cdot 79$	$3 \cdot 5 \cdot 11 \cdot 41$	$5 \cdot 29 \cdot 47$	$5 \cdot 1373$
16	66	$2^3 \cdot 827$	$2 \cdot 3 \cdot 11 \cdot 101$	$2^2 \cdot 23 \cdot 73$	$2 \cdot 17 \cdot 199$	$2^5 \cdot 3 \cdot 71$	$2 \cdot 3433$
17	67	$13 \cdot 509$	$59 \cdot 113$	$3 \cdot 2239$	$67 \cdot 101$	$17 \cdot 401$	$3^2 \cdot 7 \cdot 109$
18	68	$2 \cdot 3 \cdot 1103$	$2^2 \cdot 1667$	$2 \cdot 3359$	$2^4 \cdot 3^2 \cdot 47$	$2 \cdot 7 \cdot 487$	$2^2 \cdot 17 \cdot 101$
19	69	.....	$3^3 \cdot 13 \cdot 19$	.....	$7 \cdot 967$	$3 \cdot 2273$	.....
20	70	$2^2 \cdot 5 \cdot 331$	$2 \cdot 5 \cdot 23 \cdot 29$	$2^6 \cdot 3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 677$	$2^2 \cdot 5 \cdot 11 \cdot 31$	$2 \cdot 3 \cdot 5 \cdot 229$
21	71	$3 \cdot 2207$	$7 \cdot 953$	$11 \cdot 13 \cdot 47$	$3 \cdot 37 \cdot 61$	$19 \cdot 359$	.....
22	72	$2 \cdot 7 \cdot 11 \cdot 43$	$2^4 \cdot 3 \cdot 139$	$2 \cdot 3361$	$2^2 \cdot 1693$	$2 \cdot 3^2 \cdot 379$	$2^3 \cdot 859$
23	73	$37 \cdot 179$	.....	$3^4 \cdot 83$	$13 \cdot 521$	.....	$3 \cdot 29 \cdot 79$
24	74	$2^5 \cdot 3^2 \cdot 23$	$2 \cdot 47 \cdot 71$	$2^2 \cdot 41^2$	$2 \cdot 3 \cdot 1129$	$2^3 \cdot 853$	$2 \cdot 7 \cdot 491$
25	75	$5^3 \cdot 53$	$3 \cdot 5^2 \cdot 89$	$5^2 \cdot 269$	$5^2 \cdot 271$	$3 \cdot 5^2 \cdot 7 \cdot 13$	$5^4 \cdot 11$
26	76	$2 \cdot 3313$	$2^2 \cdot 1669$	$2 \cdot 3 \cdot 19 \cdot 59$	$2^3 \cdot 7 \cdot 11^2$	$2 \cdot 3413$	$2^2 \cdot 3^2 \cdot 191$
27	77	$3 \cdot 47^2$	$11 \cdot 607$	$7 \cdot 31^2$	$3^3 \cdot 251$	.....	$13 \cdot 23^2$
28	78	$2^2 \cdot 1657$	$2 \cdot 3^2 \cdot 7 \cdot 53$	$2^3 \cdot 29^2$	$2 \cdot 3389$	$2^2 \cdot 3 \cdot 569$	$2 \cdot 19 \cdot 181$
29	79	$7 \cdot 947$	.....	$3 \cdot 2243$	.....	.....	$3 \cdot 2293$
30	80	$2 \cdot 3 \cdot 5 \cdot 13 \cdot 17$	$2^3 \cdot 5 \cdot 167$	$2 \cdot 5 \cdot 673$	$2^2 \cdot 3 \cdot 5 \cdot 113$	$2 \cdot 5 \cdot 683$	$2^5 \cdot 5 \cdot 43$
31	81	$19 \cdot 349$	$3 \cdot 17 \cdot 131$	$53 \cdot 127$	.....	$3^3 \cdot 11 \cdot 23$	$7 \cdot 983$
32	82	$2^3 \cdot 829$	$2 \cdot 13 \cdot 257$	$2^2 \cdot 3^2 \cdot 11 \cdot 17$	$2 \cdot 3391$	$2^4 \cdot 7 \cdot 61$	$2 \cdot 3 \cdot 31 \cdot 37$
33	83	$3^2 \cdot 11 \cdot 67$	$41 \cdot 163$	.....	$3 \cdot 7 \cdot 17 \cdot 19$	.....	.....
34	84	$2 \cdot 31 \cdot 107$	$2^2 \cdot 3 \cdot 557$	$2 \cdot 7 \cdot 13 \cdot 37$	$2^7 \cdot 53$	$2 \cdot 3 \cdot 17 \cdot 67$	$2^2 \cdot 1721$
35	85	$5 \cdot 1327$	$5 \cdot 7 \cdot 191$	$3 \cdot 5 \cdot 449$	$5 \cdot 23 \cdot 59$	$5 \cdot 1367$	$3^4 \cdot 5 \cdot 17$
36	86	$2^2 \cdot 3 \cdot 7 \cdot 79$	$2 \cdot 3343$	$2^4 \cdot 421$	$2 \cdot 3^2 \cdot 13 \cdot 29$	$2^2 \cdot 1709$	$2 \cdot 11 \cdot 313$
37	87	.....	$3^2 \cdot 743$	.....	$11 \cdot 617$	$3 \cdot 43 \cdot 53$	$71 \cdot 97$
38	88	$2 \cdot 3319$	$2^5 \cdot 11 \cdot 19$	$2 \cdot 3 \cdot 1123$	$2^2 \cdot 1697$	$2 \cdot 13 \cdot 263$	$2^3 \cdot 3 \cdot 7 \cdot 41$
39	89	$3 \cdot 2213$	.....	$23 \cdot 293$	$3 \cdot 31 \cdot 73$	$7 \cdot 977$	83^2
40	90	$2^4 \cdot 5 \cdot 83$	$2 \cdot 3 \cdot 5 \cdot 223$	$2^2 \cdot 5 \cdot 337$	$2 \cdot 5 \cdot 7 \cdot 97$	$2^3 \cdot 3^2 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 13 \cdot 53$
41	91	$29 \cdot 229$	.....	$3^2 \cdot 7 \cdot 107$	.....	.....	$3 \cdot 2297$
42	92	$2 \cdot 3^4 \cdot 41$	$2^2 \cdot 7 \cdot 239$	$2 \cdot 3371$	$2^3 \cdot 3 \cdot 283$	$2 \cdot 11 \cdot 311$	$2^2 \cdot 1723$
43	93	$7 \cdot 13 \cdot 73$	$3 \cdot 23 \cdot 97$	$11 \cdot 613$	.....	$3 \cdot 2281$	$61 \cdot 113$
44	94	$2^2 \cdot 11 \cdot 151$	$2 \cdot 3347$	$2^3 \cdot 3 \cdot 281$	$2 \cdot 43 \cdot 79$	$2^2 \cdot 29 \cdot 59$	$2 \cdot 3^2 \cdot 383$
45	95	$3 \cdot 5 \cdot 443$	$5 \cdot 13 \cdot 103$	$5 \cdot 19 \cdot 71$	$3^2 \cdot 5 \cdot 151$	$5 \cdot 37^2$	$5 \cdot 7 \cdot 197$
46	96	$2 \cdot 3323$	$2^3 \cdot 3^3 \cdot 31$	$2 \cdot 3373$	$2^2 \cdot 1699$	$2 \cdot 3 \cdot 7 \cdot 163$	$2^4 \cdot 431$
47	97	$17^2 \cdot 23$	$37 \cdot 181$	$3 \cdot 13 \cdot 173$	$7 \cdot 971$	$41 \cdot 167$	$3 \cdot 11^2 \cdot 19$
48	98	$2^3 \cdot 3 \cdot 277$	$2 \cdot 17 \cdot 197$	$2^2 \cdot 7 \cdot 241$	$2 \cdot 3 \cdot 11 \cdot 103$	$2^6 \cdot 107$	$2 \cdot 3449$
49	99	$61 \cdot 109$	$3 \cdot 7 \cdot 11 \cdot 29$	$17 \cdot 397$	$13 \cdot 523$	$3^2 \cdot 761$	.....
50	100	$2 \cdot 5^2 \cdot 7 \cdot 19$	$2^2 \cdot 5^2 \cdot 67$	$2 \cdot 3^3 \cdot 5^3$	$2^4 \cdot 5^2 \cdot 17$	$2 \cdot 5^2 \cdot 137$	$2^2 \cdot 3 \cdot 5^2 \cdot 23$

Prime Numbers and Factors, 6900–7200.

From	To	6900	6950	7000	7050	7100	7150
		6950	7000	7050	7100	7150	7200
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 23$	$2 \cdot 5^2 \cdot 139$	$2^3 \cdot 5^3 \cdot 7$	$2 \cdot 3 \cdot 5^2 \cdot 47$	$2^2 \cdot 5^2 \cdot 71$	$2 \cdot 5^2 \cdot 11 \cdot 13$
1	51	$67 \cdot 103$	$3 \cdot 7 \cdot 331$	.....	$11 \cdot 641$	$3^3 \cdot 263$	.....
2	52	$2 \cdot 7 \cdot 17 \cdot 29$	$2^3 \cdot 11 \cdot 79$	$2 \cdot 3^2 \cdot 389$	$2^2 \cdot 41 \cdot 43$	$2 \cdot 53 \cdot 67$	$2^4 \cdot 3 \cdot 149$
3	53	$3^2 \cdot 13 \cdot 59$	$17 \cdot 409$	$47 \cdot 149$	$3 \cdot 2351$	.....	$23 \cdot 311$
4	54	$2^3 \cdot 863$	$2 \cdot 3 \cdot 19 \cdot 61$	$2^2 \cdot 17 \cdot 103$	$2 \cdot 3527$	$2^6 \cdot 3 \cdot 37$	$2 \cdot 7^2 \cdot 73$
5	55	$5 \cdot 1381$	$5 \cdot 13 \cdot 107$	$3 \cdot 5 \cdot 467$	$5 \cdot 17 \cdot 83$	$5 \cdot 7^2 \cdot 29$	$3^3 \cdot 5 \cdot 53$
6	56	$2 \cdot 3 \cdot 1151$	$2^2 \cdot 37 \cdot 47$	$2 \cdot 31 \cdot 113$	$2^4 \cdot 3^2 \cdot 7^2$	$2 \cdot 11 \cdot 17 \cdot 19$	$2^2 \cdot 1789$
7	57	.....	$3^2 \cdot 773$	$7^2 \cdot 11 \cdot 13$	.....	$3 \cdot 23 \cdot 103$	$17 \cdot 421$
8	58	$2^2 \cdot 11 \cdot 157$	$2 \cdot 7^2 \cdot 71$	$2^5 \cdot 3 \cdot 73$	$2 \cdot 3529$	$2^2 \cdot 1777$	$2 \cdot 3 \cdot 1193$
9	59	$3 \cdot 7^2 \cdot 47$	.....	$43 \cdot 163$	$3 \cdot 13 \cdot 181$	.....	.....
10	60	$2 \cdot 5 \cdot 691$	$2^4 \cdot 3 \cdot 5 \cdot 29$	$2 \cdot 5 \cdot 701$	$2^2 \cdot 5 \cdot 353$	$2 \cdot 3^2 \cdot 5 \cdot 79$	$2^3 \cdot 3 \cdot 179$
11	61	.....	.....	$3 \cdot 19 \cdot 41$	$23 \cdot 307$	$13 \cdot 547$	$3 \cdot 7 \cdot 11 \cdot 31$
12	62	$2^8 \cdot 3^3$	$2 \cdot 59^2$	$2^2 \cdot 1753$	$2 \cdot 3 \cdot 11 \cdot 107$	$2^3 \cdot 7 \cdot 127$	$2 \cdot 3581$
13	63	$31 \cdot 223$	$3 \cdot 11 \cdot 211$	.....	$7 \cdot 1009$	$3 \cdot 2371$	$13 \cdot 19 \cdot 29$
14	64	$2 \cdot 3457$	$2^2 \cdot 1741$	$2 \cdot 3 \cdot 7 \cdot 167$	$2^3 \cdot 883$	$2 \cdot 3557$	$2^2 \cdot 3^2 \cdot 199$
15	65	$3 \cdot 5 \cdot 461$	$5 \cdot 7 \cdot 199$	$5 \cdot 23 \cdot 61$	$3^2 \cdot 5 \cdot 157$	$5 \cdot 1423$	$5 \cdot 1433$
16	66	$2^2 \cdot 7 \cdot 13 \cdot 19$	$2 \cdot 3^4 \cdot 43$	$2^3 \cdot 877$	$2 \cdot 3533$	$2^2 \cdot 3 \cdot 593$	$2 \cdot 3583$
17	67	.....	.....	$3 \cdot 2339$	$37 \cdot 191$	$11 \cdot 647$	$3 \cdot 2389$
18	68	$2 \cdot 3 \cdot 1153$	$2^3 \cdot 13 \cdot 67$	$2 \cdot 11^2 \cdot 29$	$2^2 \cdot 3 \cdot 19 \cdot 31$	$2 \cdot 3559$	$2^{10} \cdot 7$
19	69	$11 \cdot 17 \cdot 37$	$3 \cdot 23 \cdot 101$	.....	.....	$3^2 \cdot 7 \cdot 113$	$67 \cdot 107$
20	70	$2^3 \cdot 5 \cdot 173$	$2 \cdot 5 \cdot 17 \cdot 41$	$2^2 \cdot 3^3 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 7 \cdot 101$	$2^4 \cdot 5 \cdot 89$	$2 \cdot 3 \cdot 5 \cdot 239$
21	71	$3^2 \cdot 769$	.....	$7 \cdot 17 \cdot 59$	$3 \cdot 2357$	.....	$71 \cdot 101$
22	72	$2 \cdot 3461$	$2^2 \cdot 3 \cdot 7 \cdot 83$	$2 \cdot 3511$	$2^5 \cdot 13 \cdot 17$	$2 \cdot 3 \cdot 1187$	$2^2 \cdot 11 \cdot 163$
23	73	$7 \cdot 23 \cdot 43$	$19 \cdot 367$	$3 \cdot 2341$	$11 \cdot 643$	$17 \cdot 419$	$3^2 \cdot 797$
24	74	$2^2 \cdot 3 \cdot 577$	$2 \cdot 11 \cdot 317$	$2^4 \cdot 439$	$2 \cdot 3^3 \cdot 131$	$2^2 \cdot 13 \cdot 137$	$2 \cdot 17 \cdot 211$
25	75	$5^2 \cdot 277$	$3^2 \cdot 5^2 \cdot 31$	$5^2 \cdot 281$	$5^2 \cdot 283$	$3 \cdot 5^3 \cdot 19$	$5^2 \cdot 7 \cdot 41$
26	76	$2 \cdot 3463$	$2^6 \cdot 109$	$2 \cdot 3 \cdot 1171$	$2^2 \cdot 29 \cdot 61$	$2 \cdot 7 \cdot 509$	$2^3 \cdot 3 \cdot 13 \cdot 23$
27	77	$3 \cdot 2309$	.....	.....	$3 \cdot 7 \cdot 337$	.....	.....
28	78	$2^4 \cdot 433$	$2 \cdot 3 \cdot 1163$	$2^2 \cdot 7 \cdot 251$	$2 \cdot 3539$	$2^3 \cdot 3^4 \cdot 11$	$2 \cdot 37 \cdot 97$
29	79	$13^2 \cdot 41$	$7 \cdot 997$	$3^2 \cdot 11 \cdot 71$	.....	.....	$3 \cdot 2393$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 7 \cdot 11$	$2^2 \cdot 5 \cdot 349$	$2 \cdot 5 \cdot 19 \cdot 37$	$2^3 \cdot 3 \cdot 5 \cdot 59$	$2 \cdot 5 \cdot 23 \cdot 31$	$2^2 \cdot 5 \cdot 359$
31	81	$29 \cdot 239$	$3 \cdot 13 \cdot 179$	$79 \cdot 89$	$73 \cdot 97$	$3 \cdot 2377$	$43 \cdot 167$
32	82	$2^2 \cdot 1733$	$2 \cdot 3491$	$2^3 \cdot 3 \cdot 293$	$2 \cdot 3541$	$2^2 \cdot 1783$	$2 \cdot 3^3 \cdot 7 \cdot 19$
33	83	$3 \cdot 2311$	.....	$13 \cdot 541$	$3^2 \cdot 787$	$7 \cdot 1019$	$11 \cdot 653$
34	84	$2 \cdot 3467$	$2^3 \cdot 3^2 \cdot 97$	$2 \cdot 3517$	$2^2 \cdot 7 \cdot 11 \cdot 23$	$2 \cdot 3 \cdot 29 \cdot 41$	$2^4 \cdot 449$
35	85	$5 \cdot 19 \cdot 73$	$5 \cdot 11 \cdot 127$	$3 \cdot 5 \cdot 7 \cdot 67$	$5 \cdot 13 \cdot 109$	$5 \cdot 1427$	$3 \cdot 5 \cdot 479$
36	86	$2^3 \cdot 3 \cdot 17^2$	$2 \cdot 7 \cdot 499$	$2^2 \cdot 1759$	$2 \cdot 3 \cdot 1181$	$2^5 \cdot 223$	$2 \cdot 3593$
37	87	$7 \cdot 991$	$3 \cdot 17 \cdot 137$	$31 \cdot 227$	$19 \cdot 373$	$3^2 \cdot 13 \cdot 61$	.....
38	88	$2 \cdot 3469$	$2^2 \cdot 1747$	$2 \cdot 3^2 \cdot 17 \cdot 23$	$2^4 \cdot 443$	$2 \cdot 43 \cdot 83$	$2^2 \cdot 3 \cdot 599$
39	89	$3^3 \cdot 257$	$29 \cdot 241$	.....	$3 \cdot 17 \cdot 139$	$11^2 \cdot 59$	$7 \cdot 13 \cdot 79$
40	90	$2^2 \cdot 5 \cdot 347$	$2 \cdot 3 \cdot 5 \cdot 233$	$2^7 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 709$	$2^2 \cdot 3 \cdot 5 \cdot 7 \cdot 17$	$2 \cdot 5 \cdot 719$
41	91	$11 \cdot 631$	.....	$3 \cdot 2347$	$7 \cdot 1013$	$37 \cdot 193$	$3^2 \cdot 17 \cdot 47$
42	92	$2 \cdot 3 \cdot 13 \cdot 89$	$2^4 \cdot 19 \cdot 23$	$2 \cdot 7 \cdot 503$	$2^2 \cdot 3^2 \cdot 197$	$2 \cdot 3571$	$2^3 \cdot 29 \cdot 31$
43	93	$53 \cdot 131$	$3^3 \cdot 7 \cdot 37$	.....	$41 \cdot 173$	$3 \cdot 2381$	.....
44	94	$2^3 \cdot 7 \cdot 31$	$2 \cdot 13 \cdot 269$	$2^2 \cdot 3 \cdot 587$	$2 \cdot 3547$	$2^3 \cdot 19 \cdot 47$	$2 \cdot 3 \cdot 11 \cdot 109$
45	95	$3 \cdot 5 \cdot 463$	$5 \cdot 1399$	$5 \cdot 1409$	$3 \cdot 5 \cdot 11 \cdot 43$	$5 \cdot 1429$	$5 \cdot 1439$
46	96	$2 \cdot 23 \cdot 151$	$2^2 \cdot 3 \cdot 11 \cdot 53$	$2 \cdot 13 \cdot 271$	$2^3 \cdot 887$	$2 \cdot 3^2 \cdot 397$	$2^2 \cdot 7 \cdot 257$
47	97	.....	.....	$3^5 \cdot 29$	$47 \cdot 151$	$7 \cdot 1021$	$3 \cdot 2399$
48	98	$2^2 \cdot 3^2 \cdot 193$	$3 \cdot 3499$	$2^3 \cdot 881$	$2 \cdot 3 \cdot 7 \cdot 13^2$	$2^2 \cdot 1787$	$2 \cdot 59 \cdot 61$
49	99	.....	$3 \cdot 2333$	$7 \cdot 19 \cdot 53$	$31 \cdot 229$	$3 \cdot 2383$	$23 \cdot 313$
50	100	$2 \cdot 5^2 \cdot 139$	$2^3 \cdot 5^3 \cdot 7$	$2 \cdot 3 \cdot 5^2 \cdot 47$	$2^2 \cdot 5^2 \cdot 71$	$2 \cdot 5^2 \cdot 11 \cdot 13$	$2^6 \cdot 3^2 \cdot 5^2$

Prime Numbers and Factors, 7200–7500.

From		7200	7250	7300	7350	7400	7450
To		7250	7300	7350	7400	7450	7500
0	50	$2^5 \cdot 3^2 \cdot 5^2$	$2 \cdot 5^3 \cdot 29$	$2^2 \cdot 5^2 \cdot 73$	$2 \cdot 3 \cdot 5^2 \cdot 7^2$	$2^3 \cdot 5^2 \cdot 37$	$2 \cdot 5^2 \cdot 149$
1	51	$19 \cdot 379$	$3 \cdot 2417$	$7^2 \cdot 149$	.....	$3 \cdot 2467$	.....
2	52	$2 \cdot 13 \cdot 277$	$2^2 \cdot 7^2 \cdot 37$	$2 \cdot 3 \cdot 1217$	$2^3 \cdot 919$	$2 \cdot 3701$	$2^2 \cdot 3^4 \cdot 23$
3	53	$3 \cdot 7^4$	.....	$67 \cdot 109$	$3^2 \cdot 19 \cdot 43$	$11 \cdot 673$	$29 \cdot 257$
4	54	$2^2 \cdot 1801$	$2 \cdot 3^2 \cdot 13 \cdot 31$	$2^3 \cdot 11 \cdot 83$	$2 \cdot 3677$	$2^2 \cdot 3 \cdot 617$	$2 \cdot 3727$
5	55	$5 \cdot 11 \cdot 131$	$5 \cdot 1451$	$3 \cdot 5 \cdot 487$	$5 \cdot 1471$	$5 \cdot 1481$	$3 \cdot 5 \cdot 7 \cdot 71$
6	56	$2 \cdot 3 \cdot 1201$	$2^3 \cdot 907$	$2 \cdot 13 \cdot 281$	$2^2 \cdot 3 \cdot 613$	$2 \cdot 7 \cdot 23^2$	$2^5 \cdot 233$
7	57	.....	$3 \cdot 41 \cdot 59$	.....	$7 \cdot 1051$	$3^2 \cdot 823$	.....
8	58	$2^3 \cdot 17 \cdot 53$	$2 \cdot 19 \cdot 191$	$2^2 \cdot 3^2 \cdot 7 \cdot 29$	$2 \cdot 13 \cdot 283$	$2^4 \cdot 463$	$2 \cdot 3 \cdot 11 \cdot 113$
9	59	$3^4 \cdot 89$	$7 \cdot 17 \cdot 61$	.....	$3 \cdot 11 \cdot 223$	$31 \cdot 239$	.....
10	60	$2 \cdot 5 \cdot 7 \cdot 103$	$2^2 \cdot 3 \cdot 5 \cdot 11^2$	$2 \cdot 5 \cdot 17 \cdot 43$	$2^6 \cdot 5 \cdot 23$	$2 \cdot 3 \cdot 5 \cdot 13 \cdot 19$	$2^2 \cdot 5 \cdot 373$
11	61	.....	$53 \cdot 137$	$3 \cdot 2437$	$17 \cdot 433$	.....	$3^2 \cdot 829$
12	62	$2^2 \cdot 3 \cdot 601$	$2 \cdot 3631$	$2^4 \cdot 457$	$2 \cdot 3^2 \cdot 409$	$2^2 \cdot 17 \cdot 109$	$2 \cdot 7 \cdot 13 \cdot 41$
13	63	.....	$3^3 \cdot 269$	$71 \cdot 103$	$37 \cdot 199$	$3 \cdot 7 \cdot 353$	$17 \cdot 439$
14	64	$2 \cdot 3607$	$2^5 \cdot 277$	$2 \cdot 3 \cdot 23 \cdot 53$	$2^2 \cdot 7 \cdot 263$	$2 \cdot 11 \cdot 337$	$2^3 \cdot 3 \cdot 311$
15	65	$3 \cdot 5 \cdot 13 \cdot 37$	$5 \cdot 1453$	$5 \cdot 7 \cdot 11 \cdot 19$	$3 \cdot 5 \cdot 491$	$5 \cdot 1483$	$5 \cdot 1493$
16	66	$2^4 \cdot 11 \cdot 41$	$2 \cdot 3 \cdot 7 \cdot 173$	$2^2 \cdot 31 \cdot 59$	$2 \cdot 29 \cdot 127$	$2^3 \cdot 3^2 \cdot 103$	$2 \cdot 3733$
17	67	$7 \cdot 1031$	$13^2 \cdot 43$	$3^3 \cdot 271$	$53 \cdot 139$	.....	$3 \cdot 19 \cdot 131$
18	68	$2 \cdot 3^2 \cdot 401$	$2^2 \cdot 23 \cdot 79$	$2 \cdot 3659$	$2^3 \cdot 3 \cdot 307$	$2 \cdot 3709$	$2^2 \cdot 1867$
19	69	.....	$3 \cdot 2423$	$13 \cdot 563$	.....	$3 \cdot 2473$	$7 \cdot 11 \cdot 97$
20	70	$2^2 \cdot 5 \cdot 19^2$	$2 \cdot 5 \cdot 727$	$2^3 \cdot 3 \cdot 5 \cdot 61$	$2 \cdot 5 \cdot 11 \cdot 67$	$2^2 \cdot 5 \cdot 7 \cdot 53$	$2 \cdot 3^2 \cdot 5 \cdot 83$
21	71	$3 \cdot 29 \cdot 83$	$11 \cdot 661$	.....	$3^4 \cdot 7 \cdot 13$	$41 \cdot 181$	$31 \cdot 241$
22	72	$2 \cdot 23 \cdot 157$	$2^3 \cdot 3^2 \cdot 101$	$2 \cdot 7 \cdot 523$	$2^2 \cdot 19 \cdot 97$	$2 \cdot 3 \cdot 1237$	$2^4 \cdot 467$
23	73	$31 \cdot 233$	$7 \cdot 1039$	$3 \cdot 2441$	$73 \cdot 101$	$13 \cdot 571$	$3 \cdot 47 \cdot 53$
24	74	$2^3 \cdot 3 \cdot 7 \cdot 43$	$2 \cdot 3637$	$2^2 \cdot 1831$	$2 \cdot 3 \cdot 1229$	$2^8 \cdot 29$	$2 \cdot 37 \cdot 101$
25	75	$5^2 \cdot 17^2$	$3 \cdot 5^2 \cdot 97$	$5^2 \cdot 293$	$5^3 \cdot 59$	$3^3 \cdot 5^2 \cdot 11$	$5^2 \cdot 13 \cdot 23$
26	76	$2 \cdot 3613$	$2^2 \cdot 17 \cdot 107$	$2 \cdot 3^2 \cdot 11 \cdot 37$	$2^4 \cdot 461$	$2 \cdot 47 \cdot 79$	$2^2 \cdot 3 \cdot 7 \cdot 89$
27	77	$3^2 \cdot 11 \cdot 73$	$19 \cdot 383$	$17 \cdot 431$	$3 \cdot 2459$	$7 \cdot 1061$	.....
28	78	$2^2 \cdot 13 \cdot 139$	$2 \cdot 3 \cdot 1213$	$2^5 \cdot 229$	$2 \cdot 7 \cdot 17 \cdot 31$	$2^2 \cdot 3 \cdot 619$	$2 \cdot 3739$
29	79	.....	$29 \cdot 251$	$3 \cdot 7 \cdot 349$	$47 \cdot 157$	$17 \cdot 19 \cdot 23$	$3^3 \cdot 277$
30	80	$2 \cdot 3 \cdot 5 \cdot 241$	$2^4 \cdot 5 \cdot 7 \cdot 13$	$2 \cdot 5 \cdot 733$	$2^2 \cdot 3^2 \cdot 5 \cdot 41$	$2 \cdot 5 \cdot 743$	$2^3 \cdot 5 \cdot 11 \cdot 17$
31	81	$7 \cdot 1033$	$3^2 \cdot 809$	.....	$11^2 \cdot 61$	$3 \cdot 2477$	.....
32	82	$2^6 \cdot 113$	$2 \cdot 11 \cdot 331$	$2^2 \cdot 3 \cdot 13 \cdot 47$	$2 \cdot 3691$	$2^3 \cdot 929$	$2 \cdot 3 \cdot 29 \cdot 43$
33	83	$3 \cdot 2411$	.....	.....	$3 \cdot 23 \cdot 107$	.....	$7 \cdot 1069$
34	84	$2 \cdot 3617$	$2^2 \cdot 3 \cdot 607$	$2 \cdot 19 \cdot 193$	$2^3 \cdot 13 \cdot 71$	$2 \cdot 3^2 \cdot 7 \cdot 59$	$2^2 \cdot 1871$
35	85	$5 \cdot 1447$	$5 \cdot 31 \cdot 47$	$3^2 \cdot 5 \cdot 163$	$5 \cdot 7 \cdot 211$	$5 \cdot 1487$	$3 \cdot 5 \cdot 499$
36	86	$2^2 \cdot 3^3 \cdot 67$	$2 \cdot 3643$	$2^3 \cdot 7 \cdot 131$	$2 \cdot 3 \cdot 1231$	$2^2 \cdot 11 \cdot 13^2$	$2 \cdot 19 \cdot 197$
37	87	.....	$3 \cdot 7 \cdot 347$	$11 \cdot 23 \cdot 29$	$83 \cdot 89$	$3 \cdot 37 \cdot 67$	.....
38	88	$2 \cdot 7 \cdot 11 \cdot 47$	$2^3 \cdot 911$	$2 \cdot 3 \cdot 1223$	$2^2 \cdot 1847$	$2 \cdot 3719$	$2^6 \cdot 3^2 \cdot 13$
39	89	$3 \cdot 19 \cdot 127$	$37 \cdot 197$	$41 \cdot 179$	$3^2 \cdot 821$	$43 \cdot 173$	.....
40	90	$2^3 \cdot 5 \cdot 181$	$2 \cdot 3^6 \cdot 5$	$2^2 \cdot 5 \cdot 367$	$2 \cdot 5 \cdot 739$	$2^4 \cdot 3 \cdot 5 \cdot 31$	$2 \cdot 5 \cdot 7 \cdot 107$
41	91	$13 \cdot 557$	$23 \cdot 317$	$3 \cdot 2447$	$19 \cdot 389$	$7 \cdot 1063$	$3 \cdot 11 \cdot 227$
42	92	$2 \cdot 3 \cdot 17 \cdot 71$	$2^2 \cdot 1823$	$2 \cdot 3671$	$2^5 \cdot 3 \cdot 7 \cdot 11$	$2 \cdot 61^2$	$2^2 \cdot 1873$
43	93	.....	$3 \cdot 11 \cdot 13 \cdot 17$	$7 \cdot 1049$	.....	$3^2 \cdot 827$	$59 \cdot 127$
44	94	$2^2 \cdot 1811$	$2 \cdot 7 \cdot 521$	$2^4 \cdot 3^3 \cdot 17$	$2 \cdot 3697$	$2^2 \cdot 1861$	$2 \cdot 3 \cdot 1249$
45	95	$3^2 \cdot 5 \cdot 7 \cdot 23$	$5 \cdot 1459$	$5 \cdot 13 \cdot 113$	$3 \cdot 5 \cdot 17 \cdot 29$	$5 \cdot 1489$	$5 \cdot 1499$
46	96	$2 \cdot 3623$	$2^7 \cdot 3 \cdot 19$	$2 \cdot 3673$	$2^2 \cdot 43^2$	$2 \cdot 3 \cdot 17 \cdot 73$	$2^3 \cdot 937$
47	97	.....	.....	$3 \cdot 31 \cdot 79$	$13 \cdot 569$	$11 \cdot 677$	$3^2 \cdot 7^2 \cdot 17$
48	98	$2^4 \cdot 3 \cdot 151$	$2 \cdot 41 \cdot 89$	$2^2 \cdot 11 \cdot 167$	$2 \cdot 3^3 \cdot 137$	$2^3 \cdot 7^2 \cdot 19$	$2 \cdot 23 \cdot 163$
49	99	$11 \cdot 659$	$3^2 \cdot 811$	.....	$7^2 \cdot 151$	$3 \cdot 13 \cdot 191$	.....
50	100	$2 \cdot 5^3 \cdot 29$	$2^2 \cdot 5^2 \cdot 73$	$2 \cdot 3 \cdot 5^2 \cdot 7^2$	$2^3 \cdot 5^2 \cdot 37$	$2 \cdot 5^2 \cdot 149$	$2^2 \cdot 3 \cdot 5^4$

Prime Numbers and Factors, 7500–7800.

From	To	7500 7550	7550 7600	7600 7650	7650 7700	7700 7750	7750 7800
0	50	$2^2 \cdot 3 \cdot 5^4$	$2 \cdot 5^2 \cdot 151$	$2^4 \cdot 5^2 \cdot 19$	$2 \cdot 3^2 \cdot 5^2 \cdot 17$	$2^2 \cdot 5^2 \cdot 7 \cdot 11$	$2 \cdot 5^6 \cdot 31$
1	51	$13 \cdot 577$	$3^2 \cdot 839$	$11 \cdot 691$	$7 \cdot 1093$	$3 \cdot 17 \cdot 151$	$23 \cdot 337$
2	52	$2 \cdot 11^2 \cdot 31$	$2^7 \cdot 59$	$2 \cdot 3 \cdot 7 \cdot 181$	$2^2 \cdot 1913$	$2 \cdot 3851$	$2^3 \cdot 3 \cdot 17 \cdot 19$
3	53	$3 \cdot 41 \cdot 61$	$7 \cdot 13 \cdot 83$	.....	$3 \cdot 2551$	.....	.....
4	54	$2^4 \cdot 7 \cdot 67$	$2 \cdot 3 \cdot 1259$	$2^2 \cdot 1901$	$2 \cdot 43 \cdot 89$	$2^3 \cdot 3^2 \cdot 107$	$2 \cdot 3877$
5	55	$5 \cdot 19 \cdot 79$	$5 \cdot 1511$	$3^2 \cdot 5 \cdot 13^2$	$5 \cdot 1531$	$5 \cdot 23 \cdot 67$	$3 \cdot 5 \cdot 11 \cdot 47$
6	56	$2 \cdot 3^3 \cdot 139$	$2^2 \cdot 1889$	$2 \cdot 3803$	$2^3 \cdot 3 \cdot 11 \cdot 29$	$2 \cdot 3853$	$2^2 \cdot 7 \cdot 277$
7	57	.....	$3 \cdot 11 \cdot 229$	.....	$13 \cdot 19 \cdot 31$	$3 \cdot 7 \cdot 367$	.....
8	58	$2^2 \cdot 1877$	$2 \cdot 3779$	$2^3 \cdot 3 \cdot 317$	$2 \cdot 7 \cdot 547$	$2^2 \cdot 41 \cdot 47$	$2 \cdot 3^2 \cdot 431$
9	59	$3 \cdot 2503$	.....	$7 \cdot 1087$	$3^2 \cdot 23 \cdot 37$	$13 \cdot 593$	.....
10	60	$2 \cdot 5 \cdot 751$	$2^3 \cdot 3^3 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 761$	$2^2 \cdot 5 \cdot 383$	$2 \cdot 3 \cdot 5 \cdot 257$	$2^4 \cdot 5 \cdot 97$
11	61	$7 \cdot 29 \cdot 37$	.....	$3 \cdot 43 \cdot 59$	$47 \cdot 163$	$11 \cdot 701$	$3 \cdot 13 \cdot 199$
12	62	$2^3 \cdot 3 \cdot 313$	$2 \cdot 19 \cdot 199$	$2^2 \cdot 11 \cdot 173$	$2 \cdot 3 \cdot 1277$	$2^5 \cdot 241$	$2 \cdot 3881$
13	63	$11 \cdot 683$	$3 \cdot 2521$	$23 \cdot 331$	$79 \cdot 97$	$3^2 \cdot 857$	$7 \cdot 1109$
14	64	$2 \cdot 13 \cdot 17^2$	$2^2 \cdot 31 \cdot 61$	$2 \cdot 3^4 \cdot 47$	$2^4 \cdot 479$	$2 \cdot 7 \cdot 19 \cdot 29$	$2^2 \cdot 3 \cdot 647$
15	65	$3^2 \cdot 5 \cdot 167$	$5 \cdot 17 \cdot 89$	$5 \cdot 1523$	$3 \cdot 5 \cdot 7 \cdot 73$	$5 \cdot 1543$	$5 \cdot 1553$
16	66	$2^2 \cdot 1879$	$2 \cdot 3 \cdot 13 \cdot 97$	$2^6 \cdot 7 \cdot 17$	$2 \cdot 3833$	$2^2 \cdot 3 \cdot 643$	$2 \cdot 11 \cdot 353$
17	67	.....	$7 \cdot 23 \cdot 47$	$3 \cdot 2539$	$11 \cdot 17 \cdot 41$	.....	$3^2 \cdot 863$
18	68	$2 \cdot 3 \cdot 7 \cdot 179$	$2^4 \cdot 11 \cdot 43$	$2 \cdot 13 \cdot 293$	$2^2 \cdot 3^3 \cdot 71$	$2 \cdot 17 \cdot 227$	$2^3 \cdot 971$
19	69	$73 \cdot 103$	$3^2 \cdot 29^2$	$19 \cdot 401$	.....	$3 \cdot 31 \cdot 83$	$17 \cdot 457$
20	70	$2^5 \cdot 5 \cdot 47$	$2 \cdot 5 \cdot 757$	$2^2 \cdot 3 \cdot 5 \cdot 127$	$2 \cdot 5 \cdot 13 \cdot 59$	$2^3 \cdot 5 \cdot 193$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 37$
21	71	$3 \cdot 23 \cdot 109$	$67 \cdot 113$	.....	$3 \cdot 2557$	$7 \cdot 1103$	$19 \cdot 409$
22	72	$2 \cdot 3761$	$2^2 \cdot 3 \cdot 631$	$2 \cdot 37 \cdot 103$	$2^3 \cdot 7 \cdot 137$	$2 \cdot 3^3 \cdot 11 \cdot 13$	$2^2 \cdot 29 \cdot 67$
23	73	.....	.....	$3^2 \cdot 7 \cdot 11^2$	.....	.....	$3 \cdot 2591$
24	74	$2^2 \cdot 3^2 \cdot 11 \cdot 19$	$2 \cdot 7 \cdot 541$	$2^3 \cdot 953$	$2 \cdot 3 \cdot 1279$	$2^2 \cdot 1931$	$2 \cdot 13^2 \cdot 23$
25	75	$5^2 \cdot 7 \cdot 43$	$3 \cdot 5^2 \cdot 101$	$5^3 \cdot 61$	$5^2 \cdot 307$	$3 \cdot 5^2 \cdot 103$	$5^2 \cdot 311$
26	76	$2 \cdot 53 \cdot 71$	$2^3 \cdot 947$	$2 \cdot 3 \cdot 31 \cdot 41$	$2^2 \cdot 19 \cdot 101$	$2 \cdot 3863$	$2^5 \cdot 3^5$
27	77	$3 \cdot 13 \cdot 193$	.....	$29 \cdot 263$	$3^2 \cdot 853$	.....	$7 \cdot 11 \cdot 101$
28	78	$2^3 \cdot 941$	$2 \cdot 3^2 \cdot 421$	$2^2 \cdot 1907$	$2 \cdot 11 \cdot 349$	$2^4 \cdot 3 \cdot 7 \cdot 23$	$2 \cdot 3889$
29	79	.....	$11 \cdot 13 \cdot 53$	$3 \cdot 2543$	$7 \cdot 1097$	$59 \cdot 131$	$3 \cdot 2593$
30	80	$2 \cdot 3 \cdot 5 \cdot 251$	$2^2 \cdot 5 \cdot 379$	$2 \cdot 5 \cdot 7 \cdot 109$	$2^9 \cdot 3 \cdot 5$	$2 \cdot 5 \cdot 773$	$2^2 \cdot 5 \cdot 389$
31	81	$17 \cdot 443$	$3 \cdot 7 \cdot 19^2$	$13 \cdot 587$	.....	$3^2 \cdot 859$	$31 \cdot 251$
32	82	$2^2 \cdot 7 \cdot 269$	$2 \cdot 17 \cdot 223$	$2^4 \cdot 3^2 \cdot 53$	$2 \cdot 23 \cdot 167$	$2^2 \cdot 1933$	$2 \cdot 3 \cdot 1297$
33	83	$3^5 \cdot 31$	.....	$17 \cdot 449$	$3 \cdot 13 \cdot 197$	$11 \cdot 19 \cdot 37$	$43 \cdot 181$
34	84	$2 \cdot 3767$	$2^5 \cdot 3 \cdot 79$	$2 \cdot 11 \cdot 347$	$2^2 \cdot 17 \cdot 113$	$2 \cdot 3 \cdot 1289$	$2^3 \cdot 7 \cdot 139$
35	85	$5 \cdot 11 \cdot 137$	$5 \cdot 37 \cdot 41$	$3 \cdot 5 \cdot 509$	$5 \cdot 29 \cdot 53$	$5 \cdot 7 \cdot 13 \cdot 17$	$3^2 \cdot 5 \cdot 173$
36	86	$2^4 \cdot 3 \cdot 157$	$2 \cdot 3793$	$2^2 \cdot 23 \cdot 83$	$2 \cdot 3^2 \cdot 7 \cdot 61$	$2^3 \cdot 967$	$2 \cdot 17 \cdot 229$
37	87	.....	$3^3 \cdot 281$	$7 \cdot 1091$	.....	$3 \cdot 2579$	$13 \cdot 599$
38	88	$2 \cdot 3769$	$2^2 \cdot 7 \cdot 271$	$2 \cdot 3 \cdot 19 \cdot 67$	$2^3 \cdot 31^2$	$2 \cdot 53 \cdot 73$	$2^2 \cdot 3 \cdot 11 \cdot 59$
39	89	$3 \cdot 7 \cdot 359$	.....	.....	$3 \cdot 11 \cdot 233$	$71 \cdot 109$	.....
40	90	$2^2 \cdot 5 \cdot 13 \cdot 29$	$2 \cdot 3 \cdot 5 \cdot 11 \cdot 23$	$2^3 \cdot 5 \cdot 191$	$2 \cdot 5 \cdot 769$	$2^2 \cdot 3^2 \cdot 5 \cdot 43$	$2 \cdot 5 \cdot 19 \cdot 41$
41	91	.....	.....	$3^3 \cdot 283$	.....	.....	$3 \cdot 7^2 \cdot 53$
42	92	$2 \cdot 3^2 \cdot 419$	$2^3 \cdot 13 \cdot 73$	$2 \cdot 3821$	$2^2 \cdot 3 \cdot 641$	$2 \cdot 7^2 \cdot 79$	$2^4 \cdot 487$
43	93	$19 \cdot 397$	$3 \cdot 2531$	.....	$7^2 \cdot 157$	$3 \cdot 29 \cdot 89$	.....
44	94	$2^3 \cdot 23 \cdot 41$	$2 \cdot 3797$	$2^2 \cdot 3 \cdot 7^2 \cdot 13$	$2 \cdot 3847$	$2^6 \cdot 11^2$	$2 \cdot 3^2 \cdot 433$
45	95	$3 \cdot 5 \cdot 503$	$5 \cdot 7^2 \cdot 31$	$5 \cdot 11 \cdot 139$	$3^4 \cdot 5 \cdot 19$	$5 \cdot 1549$	$5 \cdot 1559$
46	96	$2 \cdot 7^3 \cdot 11$	$2^2 \cdot 3^2 \cdot 211$	$2 \cdot 3823$	$2^4 \cdot 13 \cdot 37$	$2 \cdot 3 \cdot 1291$	$2^2 \cdot 1949$
47	97	.....	$71 \cdot 107$	$3 \cdot 2549$	$43 \cdot 179$	$61 \cdot 127$	$3 \cdot 23 \cdot 113$
48	98	$2^2 \cdot 3 \cdot 17 \cdot 37$	$2 \cdot 29 \cdot 131$	$2^5 \cdot 239$	$2 \cdot 3 \cdot 1283$	$2^2 \cdot 13 \cdot 149$	$2 \cdot 7 \cdot 557$
49	99	.....	$3 \cdot 17 \cdot 149$	.....	.....	$3^3 \cdot 7 \cdot 41$	$11 \cdot 709$
50	100	$2 \cdot 5^2 \cdot 151$	$2^4 \cdot 5^2 \cdot 19$	$2 \cdot 3^2 \cdot 5^2 \cdot 17$	$2^2 \cdot 5^2 \cdot 7 \cdot 11$	$2 \cdot 5^3 \cdot 31$	$2^3 \cdot 3 \cdot 5^2 \cdot 13$

Prime Numbers and Factors, 7800–8100.

From	To	7800	7850	7900	7950	8000	8050
		7850	7900	7950	8000	8050	8100
0	50	$2^3 \cdot 3 \cdot 5^2 \cdot 13$	$2 \cdot 5^2 \cdot 157$	$2^2 \cdot 5^2 \cdot 79$	$2 \cdot 3 \cdot 5^2 \cdot 53$	$2^6 \cdot 5^3$	$2 \cdot 5^2 \cdot 7 \cdot 23$
1	51	$29 \cdot 269$	$3 \cdot 2617$	.....	.....	$3^2 \cdot 7 \cdot 127$	$83 \cdot 97$
2	52	$2 \cdot 47 \cdot 83$	$2^2 \cdot 13 \cdot 151$	$2 \cdot 3^2 \cdot 439$	$2^4 \cdot 7 \cdot 71$	$2 \cdot 4001$	$2^2 \cdot 3 \cdot 11 \cdot 61$
3	53	$3^3 \cdot 17^2$	.....	$7 \cdot 1129$	$3 \cdot 11 \cdot 241$	$53 \cdot 151$	.....
4	54	$2^2 \cdot 1951$	$2 \cdot 3 \cdot 7 \cdot 11 \cdot 17$	$2^5 \cdot 13 \cdot 19$	$2 \cdot 41 \cdot 97$	$2^2 \cdot 3 \cdot 23 \cdot 29$	$2 \cdot 4027$
5	55	$5 \cdot 7 \cdot 223$	$5 \cdot 1571$	$3 \cdot 5 \cdot 17 \cdot 31$	$5 \cdot 37 \cdot 43$	$5 \cdot 1601$	$3^2 \cdot 5 \cdot 179$
6	56	$2 \cdot 3 \cdot 1301$	$2^4 \cdot 491$	$2 \cdot 59 \cdot 67$	$2^2 \cdot 3^2 \cdot 13 \cdot 17$	$2 \cdot 4003$	$2^3 \cdot 19 \cdot 53$
7	57	$37 \cdot 211$	$3^4 \cdot 97$	.....	$73 \cdot 109$	$3 \cdot 17 \cdot 157$	$7 \cdot 1151$
8	58	$2^7 \cdot 61$	$2 \cdot 3929$	$2^2 \cdot 3 \cdot 659$	$2 \cdot 23 \cdot 173$	$2^3 \cdot 7 \cdot 11 \cdot 13$	$2 \cdot 3 \cdot 17 \cdot 79$
9	59	$3 \cdot 19 \cdot 137$	$29 \cdot 271$	$11 \cdot 719$	$3 \cdot 7 \cdot 379$	.....	.....
10	60	$2 \cdot 5 \cdot 11 \cdot 71$	$2^2 \cdot 3 \cdot 5 \cdot 131$	$2 \cdot 5 \cdot 7 \cdot 113$	$2^3 \cdot 5 \cdot 199$	$2 \cdot 3^2 \cdot 5 \cdot 89$	$2^2 \cdot 5 \cdot 13 \cdot 31$
11	61	$73 \cdot 107$	$7 \cdot 1123$	$3^3 \cdot 293$	$19 \cdot 419$	.....	$3 \cdot 2687$
12	62	$2^2 \cdot 3^2 \cdot 7 \cdot 31$	$2 \cdot 3931$	$2^3 \cdot 23 \cdot 43$	$2 \cdot 3 \cdot 1327$	$2^2 \cdot 2003$	$2 \cdot 29 \cdot 139$
13	63	$13 \cdot 601$	$3 \cdot 2621$	$41 \cdot 193$	.....	$3 \cdot 2671$	$11 \cdot 733$
14	64	$2 \cdot 3907$	$2^3 \cdot 983$	$2 \cdot 3 \cdot 1319$	$2^2 \cdot 11 \cdot 181$	$2 \cdot 4007$	$2^7 \cdot 3^2 \cdot 7$
15	65	$3 \cdot 5 \cdot 521$	$5 \cdot 11^2 \cdot 13$	$5 \cdot 1583$	$3^3 \cdot 5 \cdot 59$	$5 \cdot 7 \cdot 229$	$5 \cdot 1613$
16	66	$2^3 \cdot 977$	$2 \cdot 3^2 \cdot 19 \cdot 23$	$2^2 \cdot 1979$	$2 \cdot 7 \cdot 569$	$2^4 \cdot 3 \cdot 167$	$2 \cdot 37 \cdot 109$
17	67	.....	.....	$3 \cdot 7 \cdot 13 \cdot 29$	$31 \cdot 257$	.....	$3 \cdot 2689$
18	68	$2 \cdot 3 \cdot 1303$	$2^2 \cdot 7 \cdot 281$	$2 \cdot 37 \cdot 107$	$2^5 \cdot 3 \cdot 83$	$2 \cdot 19 \cdot 211$	$2^2 \cdot 2017$
19	69	$7 \cdot 1117$	$3 \cdot 43 \cdot 61$	.....	$13 \cdot 613$	$3^6 \cdot 11$	.....
20	70	$2^2 \cdot 5 \cdot 17 \cdot 23$	$2 \cdot 5 \cdot 787$	$2^4 \cdot 3^2 \cdot 5 \cdot 11$	$2 \cdot 5 \cdot 797$	$2^2 \cdot 5 \cdot 401$	$2 \cdot 3 \cdot 5 \cdot 269$
21	71	$3^2 \cdot 11 \cdot 79$	$17 \cdot 463$	89^2	$3 \cdot 2657$	$13 \cdot 617$	$7 \cdot 1153$
22	72	$2 \cdot 3911$	$2^6 \cdot 3 \cdot 41$	$2 \cdot 17 \cdot 233$	$2^2 \cdot 1993$	$2 \cdot 3 \cdot 7 \cdot 191$	$2^3 \cdot 1009$
23	73	.....	.....	$3 \cdot 19 \cdot 139$	$7 \cdot 17 \cdot 67$	$71 \cdot 113$	$3^3 \cdot 13 \cdot 23$
24	74	$2^4 \cdot 3 \cdot 163$	$2 \cdot 31 \cdot 127$	$2^2 \cdot 7 \cdot 283$	$2 \cdot 3^2 \cdot 443$	$2^3 \cdot 17 \cdot 59$	$2 \cdot 11 \cdot 367$
25	75	$5^2 \cdot 313$	$3^2 \cdot 5^3 \cdot 7$	$5^2 \cdot 317$	$5^2 \cdot 11 \cdot 29$	$3 \cdot 5^2 \cdot 107$	$5^2 \cdot 17 \cdot 19$
26	76	$2 \cdot 7 \cdot 13 \cdot 43$	$2^2 \cdot 11 \cdot 179$	$2 \cdot 3 \cdot 1321$	$2^3 \cdot 997$	$2 \cdot 4013$	$2^2 \cdot 3 \cdot 673$
27	77	$3 \cdot 2609$	.....	.....	$3 \cdot 2659$	$23 \cdot 349$	$41 \cdot 197$
28	78	$2^2 \cdot 19 \cdot 103$	$2 \cdot 3 \cdot 13 \cdot 101$	$2^3 \cdot 991$	$2 \cdot 3989$	$2^2 \cdot 3^2 \cdot 223$	$2 \cdot 7 \cdot 577$
29	79	.....	.....	$3^2 \cdot 881$	$79 \cdot 101$	$7 \cdot 31 \cdot 37$	$3 \cdot 2693$
30	80	$2 \cdot 3^3 \cdot 5 \cdot 29$	$2^3 \cdot 5 \cdot 197$	$2 \cdot 5 \cdot 13 \cdot 61$	$2^2 \cdot 3 \cdot 5 \cdot 7 \cdot 19$	$2 \cdot 5 \cdot 11 \cdot 73$	$2^4 \cdot 5 \cdot 101$
31	81	$41 \cdot 191$	$3 \cdot 37 \cdot 71$	$7 \cdot 11 \cdot 103$	$23 \cdot 347$	$3 \cdot 2677$	.....
32	82	$2^3 \cdot 11 \cdot 89$	$2 \cdot 7 \cdot 563$	$2^2 \cdot 3 \cdot 661$	$2 \cdot 13 \cdot 307$	$2^5 \cdot 251$	$2 \cdot 3^2 \cdot 449$
33	83	$3 \cdot 7 \cdot 373$	.....	.....	$3^2 \cdot 887$	$29 \cdot 277$	$59 \cdot 137$
34	84	$2 \cdot 3917$	$2^2 \cdot 3^3 \cdot 73$	$2 \cdot 3967$	$2^4 \cdot 499$	$2 \cdot 3 \cdot 13 \cdot 103$	$2^2 \cdot 43 \cdot 47$
35	85	$5 \cdot 1567$	$5 \cdot 19 \cdot 83$	$3 \cdot 5 \cdot 23^2$	$5 \cdot 1597$	$5 \cdot 1607$	$3 \cdot 5 \cdot 7^2 \cdot 11$
36	86	$2^2 \cdot 3 \cdot 653$	$2 \cdot 3943$	$2^8 \cdot 31$	$2 \cdot 3 \cdot 11^3$	$2^2 \cdot 7^2 \cdot 41$	$2 \cdot 13 \cdot 311$
37	87	$17 \cdot 461$	$3 \cdot 11 \cdot 239$	.....	$7^2 \cdot 163$	$3^2 \cdot 19 \cdot 47$	.....
38	88	$2 \cdot 3919$	$2^4 \cdot 17 \cdot 29$	$2 \cdot 3^4 \cdot 7^2$	$2^2 \cdot 1997$	$2 \cdot 4019$	$2^3 \cdot 3 \cdot 337$
39	89	$3^2 \cdot 13 \cdot 67$	$7^3 \cdot 23$	$17 \cdot 467$	$3 \cdot 2663$	.....	.....
40	90	$2^5 \cdot 5 \cdot 7^2$	$2 \cdot 3 \cdot 5 \cdot 263$	$2^2 \cdot 5 \cdot 397$	$2 \cdot 5 \cdot 17 \cdot 47$	$2^3 \cdot 3 \cdot 5 \cdot 67$	$2 \cdot 5 \cdot 809$
41	91	.....	$13 \cdot 607$	$3 \cdot 2647$	$61 \cdot 131$	$11 \cdot 17 \cdot 43$	$3^2 \cdot 29 \cdot 31$
42	92	$2 \cdot 3 \cdot 1307$	$2^2 \cdot 1973$	$2 \cdot 11 \cdot 19^2$	$2^3 \cdot 3^3 \cdot 37$	$2 \cdot 4021$	$2^2 \cdot 7 \cdot 17^2$
43	93	$11 \cdot 23 \cdot 31$	$3^2 \cdot 877$	$13^2 \cdot 47$	.....	$3 \cdot 7 \cdot 383$	.....
44	94	$2^2 \cdot 37 \cdot 53$	$2 \cdot 3947$	$2^3 \cdot 3 \cdot 331$	$2 \cdot 7 \cdot 571$	$2^2 \cdot 2011$	$2 \cdot 3 \cdot 19 \cdot 71$
45	95	$3 \cdot 5 \cdot 523$	$5 \cdot 1579$	$5 \cdot 7 \cdot 227$	$3 \cdot 5 \cdot 13 \cdot 41$	$5 \cdot 1609$	$5 \cdot 1619$
46	96	$2 \cdot 3923$	$2^3 \cdot 3 \cdot 7 \cdot 47$	$2 \cdot 29 \cdot 137$	$2^2 \cdot 1999$	$2 \cdot 3^3 \cdot 149$	$2^5 \cdot 11 \cdot 23$
47	97	$7 \cdot 19 \cdot 59$	$53 \cdot 149$	$3^2 \cdot 883$	$11 \cdot 727$	$13 \cdot 619$	$3 \cdot 2699$
48	98	$2^3 \cdot 3^2 \cdot 109$	$2 \cdot 11 \cdot 359$	$2^2 \cdot 1987$	$2 \cdot 3 \cdot 31 \cdot 43$	$2^4 \cdot 503$	$2 \cdot 4049$
49	99	$47 \cdot 167$	$3 \cdot 2633$	.....	$19 \cdot 421$	$3 \cdot 2683$	$7 \cdot 13 \cdot 89$
50	100	$2 \cdot 5^2 \cdot 157$	$2^2 \cdot 5^2 \cdot 79$	$2 \cdot 3 \cdot 5^2 \cdot 53$	$2^6 \cdot 5^3$	$2 \cdot 5^2 \cdot 7 \cdot 23$	$2^2 \cdot 3^4 \cdot 5^2$

Prime Numbers and Factors, 8100–8400.

From	To	8100 8150	8150 8200	8200 8250	8250 8300	8300 8350	8350 8400
0	50	$2^2 \cdot 3^4 \cdot 5^2$	$2 \cdot 5^2 \cdot 163$	$2^3 \cdot 5^2 \cdot 41$	$2 \cdot 3 \cdot 5^3 \cdot 11$	$2^2 \cdot 5^2 \cdot 83$	$2 \cdot 5^2 \cdot 167$
1	51	.....	$3 \cdot 11 \cdot 13 \cdot 19$	$59 \cdot 139$	$37 \cdot 223$	$3 \cdot 2767$	$7 \cdot 1193$
2	52	$2 \cdot 4051$	$2^3 \cdot 1019$	$2 \cdot 3 \cdot 1367$	$2^2 \cdot 2063$	$2 \cdot 7 \cdot 593$	$2^5 \cdot 3^2 \cdot 29$
3	53	$3 \cdot 37 \cdot 73$	$31 \cdot 263$	$13 \cdot 631$	$3^2 \cdot 7 \cdot 131$	$19^2 \cdot 23$	.....
4	54	$2^3 \cdot 1013$	$2 \cdot 3^3 \cdot 151$	$2^2 \cdot 7 \cdot 293$	$2 \cdot 4127$	$2^4 \cdot 3 \cdot 173$	$2 \cdot 4177$
5	55	$5 \cdot 1621$	$5 \cdot 7 \cdot 233$	$3 \cdot 5 \cdot 547$	$5 \cdot 13 \cdot 127$	$5 \cdot 11 \cdot 151$	$3 \cdot 5 \cdot 557$
6	56	$2 \cdot 3 \cdot 7 \cdot 193$	$2^2 \cdot 2039$	$2 \cdot 11 \cdot 373$	$2^6 \cdot 3 \cdot 43$	$2 \cdot 4153$	$2^2 \cdot 2089$
7	57	$11^2 \cdot 67$	$3 \cdot 2719$	$29 \cdot 283$	$23 \cdot 359$	$3^2 \cdot 13 \cdot 71$	$61 \cdot 137$
8	58	$2^2 \cdot 2027$	$2 \cdot 4079$	$2^4 \cdot 3^3 \cdot 19$	$2 \cdot 4129$	$2^2 \cdot 31 \cdot 67$	$2 \cdot 3 \cdot 7 \cdot 199$
9	59	$3^2 \cdot 17 \cdot 53$	$41 \cdot 199$	.....	$3 \cdot 2753$	$7 \cdot 1187$	$13 \cdot 643$
10	60	$2 \cdot 5 \cdot 811$	$2^5 \cdot 3 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 821$	$2^2 \cdot 5 \cdot 7 \cdot 59$	$2 \cdot 3 \cdot 5 \cdot 277$	$2^3 \cdot 5 \cdot 11 \cdot 19$
11	61	.....	.....	$3 \cdot 7 \cdot 17 \cdot 23$	$11 \cdot 751$	.....	$3^2 \cdot 929$
12	62	$2^4 \cdot 3 \cdot 13^2$	$2 \cdot 7 \cdot 11 \cdot 53$	$2^2 \cdot 2053$	$2 \cdot 3^5 \cdot 17$	$2^3 \cdot 1039$	$2 \cdot 37 \cdot 113$
13	63	$7 \cdot 19 \cdot 61$	$3^2 \cdot 907$	$43 \cdot 191$	.....	$3 \cdot 17 \cdot 163$	.....
14	64	$2 \cdot 4057$	$2^2 \cdot 13 \cdot 157$	$2 \cdot 3 \cdot 37^2$	$2^3 \cdot 1033$	$2 \cdot 4157$	$2^2 \cdot 3 \cdot 17 \cdot 41$
15	65	$3 \cdot 5 \cdot 541$	$5 \cdot 23 \cdot 71$	$5 \cdot 31 \cdot 53$	$3 \cdot 5 \cdot 19 \cdot 29$	$5 \cdot 1663$	$5 \cdot 7 \cdot 239$
16	66	$2^2 \cdot 2029$	$2 \cdot 3 \cdot 1361$	$2^3 \cdot 13 \cdot 79$	$2 \cdot 4133$	$2^2 \cdot 3^3 \cdot 7 \cdot 11$	$2 \cdot 47 \cdot 89$
17	67	.....	.....	$3^2 \cdot 11 \cdot 83$	$7 \cdot 1181$	.....	$3 \cdot 2789$
18	68	$2 \cdot 3^2 \cdot 11 \cdot 41$	$2^3 \cdot 1021$	$2 \cdot 7 \cdot 587$	$2^2 \cdot 3 \cdot 13 \cdot 53$	$2 \cdot 4159$	$2^4 \cdot 523$
19	69	$23 \cdot 353$	$3 \cdot 7 \cdot 389$	.....	.....	$3 \cdot 47 \cdot 59$	.....
20	70	$2^3 \cdot 5 \cdot 7 \cdot 29$	$2 \cdot 5 \cdot 19 \cdot 43$	$2^2 \cdot 3 \cdot 5 \cdot 137$	$2 \cdot 5 \cdot 827$	$2^7 \cdot 5 \cdot 13$	$2 \cdot 3^3 \cdot 5 \cdot 31$
21	71	$3 \cdot 2707$	.....	.....	$3^2 \cdot 919$	$53 \cdot 157$	$11 \cdot 761$
22	72	$2 \cdot 31 \cdot 131$	$2^2 \cdot 3^3 \cdot 227$	$2 \cdot 4111$	$2^4 \cdot 11 \cdot 47$	$2 \cdot 3 \cdot 19 \cdot 73$	$2^2 \cdot 7 \cdot 13 \cdot 23$
23	73	.....	$11 \cdot 743$	$3 \cdot 2741$	.....	$7 \cdot 29 \cdot 41$	$3 \cdot 2791$
24	74	$2^2 \cdot 3 \cdot 677$	$2 \cdot 61 \cdot 67$	$2^5 \cdot 257$	$2 \cdot 3 \cdot 7 \cdot 197$	$2^2 \cdot 2081$	$2 \cdot 53 \cdot 79$
25	75	$5^4 \cdot 13$	$3 \cdot 5^2 \cdot 109$	$5^2 \cdot 7 \cdot 47$	$5^2 \cdot 331$	$3^2 \cdot 5^2 \cdot 37$	$5^3 \cdot 67$
26	76	$2 \cdot 17 \cdot 239$	$2^4 \cdot 7 \cdot 73$	$2 \cdot 3^2 \cdot 457$	$2^2 \cdot 2069$	$2 \cdot 23 \cdot 181$	$2^3 \cdot 3 \cdot 349$
27	77	$3^3 \cdot 7 \cdot 43$	$13 \cdot 17 \cdot 37$	$19 \cdot 433$	$3 \cdot 31 \cdot 89$	$11 \cdot 757$	.....
28	78	$2^6 \cdot 127$	$2 \cdot 3 \cdot 29 \cdot 47$	$2^2 \cdot 11^2 \cdot 17$	$2 \cdot 4139$	$2^3 \cdot 3 \cdot 347$	$2 \cdot 59 \cdot 71$
29	79	$11 \cdot 739$	.....	$3 \cdot 13 \cdot 211$	$17 \cdot 487$	.....	$3^2 \cdot 7^2 \cdot 19$
30	80	$2 \cdot 3 \cdot 5 \cdot 271$	$2^2 \cdot 5 \cdot 409$	$2 \cdot 5 \cdot 823$	$2^3 \cdot 3^2 \cdot 5 \cdot 23$	$2 \cdot 5 \cdot 7^2 \cdot 17$	$2^2 \cdot 5 \cdot 419$
31	81	$47 \cdot 173$	$3^4 \cdot 101$	.....	$7^2 \cdot 13^2$	$3 \cdot 2777$	$17^2 \cdot 29$
32	82	$2^2 \cdot 19 \cdot 107$	$2 \cdot 4091$	$2^3 \cdot 3 \cdot 7^3$	$2 \cdot 41 \cdot 101$	$2^2 \cdot 2083$	$2 \cdot 3 \cdot 11 \cdot 127$
33	83	$3 \cdot 2711$	$7^2 \cdot 167$	.....	$3 \cdot 11 \cdot 251$	$13 \cdot 641$	$83 \cdot 101$
34	84	$2 \cdot 7^2 \cdot 83$	$2^3 \cdot 3 \cdot 11 \cdot 31$	$2 \cdot 23 \cdot 179$	$2^2 \cdot 19 \cdot 109$	$2 \cdot 3^2 \cdot 463$	$2^6 \cdot 131$
35	85	$5 \cdot 1627$	$5 \cdot 1637$	$3^3 \cdot 5 \cdot 61$	$5^2 \cdot 331$	$5 \cdot 1667$	$3 \cdot 5 \cdot 13 \cdot 43$
36	86	$2^3 \cdot 3^2 \cdot 113$	$2 \cdot 4093$	$2^2 \cdot 29 \cdot 71$	$2 \cdot 3 \cdot 1381$	$2^4 \cdot 521$	$2 \cdot 7 \cdot 599$
37	87	$79 \cdot 103$	$3 \cdot 2729$	.....	.....	$3 \cdot 7 \cdot 397$	.....
38	88	$2 \cdot 13 \cdot 313$	$2^2 \cdot 23 \cdot 89$	$2 \cdot 3 \cdot 1373$	$2^5 \cdot 7 \cdot 37$	$2 \cdot 11 \cdot 379$	$2^2 \cdot 3^2 \cdot 233$
39	89	$3 \cdot 2713$	$19 \cdot 431$	$7 \cdot 11 \cdot 107$	$3^3 \cdot 307$	$31 \cdot 269$	.....
40	90	$2^2 \cdot 5 \cdot 11 \cdot 37$	$2 \cdot 3^2 \cdot 5 \cdot 7 \cdot 13$	$2^4 \cdot 5 \cdot 103$	$2 \cdot 5 \cdot 829$	$2^2 \cdot 3 \cdot 5 \cdot 139$	$2 \cdot 5 \cdot 839$
41	91	$7 \cdot 1163$	.....	$3 \cdot 41 \cdot 67$	.....	$19 \cdot 439$	$3 \cdot 2797$
42	92	$2 \cdot 3 \cdot 23 \cdot 59$	2^{13}	$2 \cdot 13 \cdot 317$	$2^2 \cdot 3 \cdot 691$	$2 \cdot 43 \cdot 97$	$2^3 \cdot 1049$
43	93	$17 \cdot 479$	$3 \cdot 2731$	.....	.....	$3^4 \cdot 103$	$7 \cdot 11 \cdot 109$
44	94	$2^4 \cdot 509$	$2 \cdot 17 \cdot 241$	$2^2 \cdot 3^2 \cdot 229$	$2 \cdot 11 \cdot 13 \cdot 29$	$2^3 \cdot 7 \cdot 149$	$2 \cdot 3 \cdot 1399$
45	95	$3^2 \cdot 5 \cdot 181$	$5 \cdot 11 \cdot 149$	$5 \cdot 17 \cdot 97$	$3 \cdot 5 \cdot 7 \cdot 79$	$5 \cdot 1669$	$5 \cdot 23 \cdot 73$
46	96	$2 \cdot 4073$	$2^2 \cdot 3 \cdot 683$	$2 \cdot 7 \cdot 19 \cdot 31$	$2^3 \cdot 17 \cdot 61$	$2 \cdot 3 \cdot 13 \cdot 107$	$2^2 \cdot 2099$
47	97	.....	$7 \cdot 1171$	$3 \cdot 2749$	.....	$17 \cdot 491$	$3^3 \cdot 311$
48	98	$2^2 \cdot 3 \cdot 7 \cdot 97$	$2 \cdot 4099$	$2^3 \cdot 1031$	$2 \cdot 3^2 \cdot 461$	$2^2 \cdot 2087$	$2 \cdot 13 \cdot 17 \cdot 19$
49	99	$29 \cdot 281$	$3^2 \cdot 911$	$73 \cdot 113$	$43 \cdot 193$	$3 \cdot 11^2 \cdot 23$	$37 \cdot 227$
50	100	$2 \cdot 5^2 \cdot 163$	$2^3 \cdot 5^2 \cdot 41$	$2 \cdot 3 \cdot 5^3 \cdot 11$	$2^2 \cdot 5^2 \cdot 83$	$2 \cdot 5^2 \cdot 167$	$2^4 \cdot 3 \cdot 5^2 \cdot 7$

Prime Numbers and Factors, 8400–8700.

From	To	8400 8450	8450 8500	8500 8550	8550 8600	8600 8650	8650 8700
0	50	$2^4 \cdot 3 \cdot 5^2 \cdot 7$	$2 \cdot 5^2 \cdot 13^2$	$2^2 \cdot 5^3 \cdot 17$	$2 \cdot 3^2 \cdot 5^2 \cdot 19$	$2^3 \cdot 5^2 \cdot 43$	$2 \cdot 5^2 \cdot 173$
1	51	$31 \cdot 271$	$3^3 \cdot 313$	.....	$17 \cdot 503$	$3 \cdot 47 \cdot 61$	$41 \cdot 211$
2	52	$2 \cdot 4201$	$2^2 \cdot 2113$	$2 \cdot 3 \cdot 13 \cdot 109$	$2^3 \cdot 1069$	$2 \cdot 11 \cdot 17 \cdot 23$	$2^2 \cdot 3 \cdot 7 \cdot 103$
3	53	$3 \cdot 2801$	$79 \cdot 107$	$11 \cdot 773$	$3 \cdot 2851$	$7 \cdot 1229$	$17 \cdot 509$
4	54	$2^2 \cdot 11 \cdot 191$	$2 \cdot 3 \cdot 1409$	$2^3 \cdot 1063$	$2 \cdot 7 \cdot 13 \cdot 47$	$2^2 \cdot 3^2 \cdot 239$	$2 \cdot 4327$
5	55	$5 \cdot 41^2$	$5 \cdot 19 \cdot 89$	$3^5 \cdot 5 \cdot 7$	$5 \cdot 29 \cdot 59$	$5 \cdot 1721$	$3 \cdot 5 \cdot 577$
6	56	$2 \cdot 3^2 \cdot 467$	$2^3 \cdot 7 \cdot 151$	$2 \cdot 4253$	$2^2 \cdot 3 \cdot 23 \cdot 31$	$2 \cdot 13 \cdot 331$	$2^4 \cdot 541$
7	57	$7 \cdot 1201$	$3 \cdot 2819$	$47 \cdot 181$	$43 \cdot 199$	$3 \cdot 19 \cdot 151$	$11 \cdot 787$
8	58	$2^3 \cdot 1051$	$2 \cdot 4229$	$2^2 \cdot 3 \cdot 709$	$2 \cdot 11 \cdot 389$	$2^5 \cdot 269$	$2 \cdot 3^2 \cdot 13 \cdot 37$
9	59	$3 \cdot 2803$	$11 \cdot 769$	$67 \cdot 127$	$3^3 \cdot 317$	.....	$7 \cdot 1237$
10	60	$2 \cdot 5 \cdot 29^2$	$2^2 \cdot 3^2 \cdot 5 \cdot 47$	$2 \cdot 5 \cdot 23 \cdot 37$	$2^4 \cdot 5 \cdot 107$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 41$	$2^2 \cdot 5 \cdot 433$
11	61	$13 \cdot 647$	.....	$3 \cdot 2837$	$7 \cdot 1223$	$79 \cdot 109$	$3 \cdot 2887$
12	62	$2^2 \cdot 3 \cdot 701$	$2 \cdot 4231$	$2^6 \cdot 7 \cdot 19$	$2 \cdot 3 \cdot 1427$	$2^2 \cdot 2153$	$2 \cdot 61 \cdot 71$
13	63	$47 \cdot 179$	$3 \cdot 7 \cdot 13 \cdot 31$	.....	.....	$3^3 \cdot 11 \cdot 29$	.....
14	64	$2 \cdot 7 \cdot 601$	$2^4 \cdot 23^2$	$2 \cdot 3^2 \cdot 11 \cdot 43$	$2^2 \cdot 2141$	$2 \cdot 59 \cdot 73$	$2^3 \cdot 3 \cdot 19^2$
15	65	$3^2 \cdot 5 \cdot 11 \cdot 17$	$5 \cdot 1693$	$5 \cdot 13 \cdot 131$	$3 \cdot 5 \cdot 571$	$5 \cdot 1723$	$5 \cdot 1733$
16	66	$2^5 \cdot 263$	$2 \cdot 3 \cdot 17 \cdot 83$	$2^2 \cdot 2129$	$2 \cdot 4283$	$2^3 \cdot 3 \cdot 359$	$2 \cdot 7 \cdot 619$
17	67	$19 \cdot 443$	.....	$3 \cdot 17 \cdot 167$	$13 \cdot 659$	$7 \cdot 1231$	$3^4 \cdot 107$
18	68	$2 \cdot 3 \cdot 23 \cdot 61$	$2^2 \cdot 29 \cdot 73$	$2 \cdot 4259$	$2^3 \cdot 3^2 \cdot 7 \cdot 17$	$2 \cdot 31 \cdot 139$	$2^2 \cdot 11 \cdot 197$
19	69	.....	$3^2 \cdot 941$	$7 \cdot 1217$	$11 \cdot 19 \cdot 41$	$3 \cdot 13^2 \cdot 17$	.....
20	70	$2^2 \cdot 5 \cdot 421$	$2 \cdot 5 \cdot 7 \cdot 11^2$	$2^3 \cdot 3 \cdot 5 \cdot 71$	$2 \cdot 5 \cdot 857$	$2^2 \cdot 5 \cdot 431$	$2 \cdot 3 \cdot 5 \cdot 17^2$
21	71	$3 \cdot 7 \cdot 401$	$43 \cdot 197$	.....	$3 \cdot 2857$	$37 \cdot 233$	$13 \cdot 23 \cdot 29$
22	72	$2 \cdot 4211$	$2^3 \cdot 3 \cdot 353$	$2 \cdot 4261$	$2^2 \cdot 2143$	$2 \cdot 3^2 \cdot 479$	$2^5 \cdot 271$
23	73	.....	$37 \cdot 229$	$3^2 \cdot 947$	.....	.....	$3 \cdot 7^2 \cdot 59$
24	74	$2^3 \cdot 3^4 \cdot 13$	$2 \cdot 19 \cdot 223$	$2^2 \cdot 2131$	$2 \cdot 3 \cdot 1429$	$2^4 \cdot 7^2 \cdot 11$	$2 \cdot 4337$
25	75	$5^2 \cdot 337$	$3 \cdot 5^2 \cdot 113$	$5^2 \cdot 11 \cdot 31$	$5^2 \cdot 7^3$	$3 \cdot 5^3 \cdot 23$	$5^2 \cdot 347$
26	76	$2 \cdot 11 \cdot 383$	$2^2 \cdot 13 \cdot 163$	$2 \cdot 3 \cdot 7^2 \cdot 29$	$2^7 \cdot 67$	$2 \cdot 19 \cdot 227$	$2^2 \cdot 3^2 \cdot 241$
27	77	$3 \cdot 53^2$	$7^2 \cdot 173$	.....	$3^2 \cdot 953$	.....	.....
28	78	$2^2 \cdot 7^2 \cdot 43$	$2 \cdot 3^3 \cdot 157$	$2^4 \cdot 13 \cdot 41$	$2 \cdot 4289$	$2^2 \cdot 3 \cdot 719$	$2 \cdot 4339$
29	79	.....	$61 \cdot 139$	$3 \cdot 2843$	$23 \cdot 373$	.....	$3 \cdot 11 \cdot 263$
30	80	$2 \cdot 3 \cdot 5 \cdot 281$	$2^5 \cdot 5 \cdot 53$	$2 \cdot 5 \cdot 853$	$2^2 \cdot 3 \cdot 5 \cdot 11 \cdot 13$	$2 \cdot 5 \cdot 863$	$2^3 \cdot 5 \cdot 7 \cdot 31$
31	81	.....	$3 \cdot 11 \cdot 257$	$19 \cdot 449$	.....	$3^2 \cdot 7 \cdot 137$	.....
32	82	$2^4 \cdot 17 \cdot 31$	$2 \cdot 4241$	$2^2 \cdot 3^3 \cdot 79$	$2 \cdot 7 \cdot 613$	$2^3 \cdot 13 \cdot 83$	$2 \cdot 3 \cdot 1447$
33	83	$3^2 \cdot 937$	$17 \cdot 499$	$7 \cdot 23 \cdot 53$	$3 \cdot 2861$	$89 \cdot 97$	$19 \cdot 457$
34	84	$2 \cdot 4217$	$2^2 \cdot 3 \cdot 7 \cdot 101$	$2 \cdot 17 \cdot 251$	$2^3 \cdot 29 \cdot 37$	$2 \cdot 3 \cdot 1439$	$2^2 \cdot 13 \cdot 167$
35	85	$5 \cdot 7 \cdot 241$	$5 \cdot 1697$	$3 \cdot 5 \cdot 569$	$5 \cdot 17 \cdot 101$	$5 \cdot 11 \cdot 157$	$3^2 \cdot 5 \cdot 193$
36	86	$2^2 \cdot 3 \cdot 19 \cdot 37$	$2 \cdot 4243$	$2^3 \cdot 11 \cdot 97$	$2 \cdot 3^4 \cdot 53$	$2^2 \cdot 17 \cdot 127$	$2 \cdot 43 \cdot 101$
37	87	$11 \cdot 13 \cdot 59$	$3^2 \cdot 23 \cdot 41$	.....	$31 \cdot 277$	$3 \cdot 2879$	$7 \cdot 17 \cdot 73$
38	88	$2 \cdot 4219$	$2^3 \cdot 1061$	$2 \cdot 3 \cdot 1423$	$2^2 \cdot 19 \cdot 113$	$2 \cdot 7 \cdot 617$	$2^4 \cdot 3 \cdot 181$
39	89	$3 \cdot 29 \cdot 97$	$13 \cdot 653$	.....	$3 \cdot 7 \cdot 409$	$53 \cdot 163$	.....
40	90	$2^3 \cdot 5 \cdot 211$	$2 \cdot 3 \cdot 5 \cdot 283$	$2^2 \cdot 5 \cdot 7 \cdot 61$	$2 \cdot 5 \cdot 859$	$2^6 \cdot 3^3 \cdot 5$	$2 \cdot 5 \cdot 11 \cdot 79$
41	91	$23 \cdot 367$	$7 \cdot 1213$	$3^2 \cdot 13 \cdot 73$	$11^2 \cdot 71$	.....	$3 \cdot 2897$
42	92	$2 \cdot 3^2 \cdot 7 \cdot 67$	$2^2 \cdot 11 \cdot 193$	$2 \cdot 4271$	$2^4 \cdot 3 \cdot 179$	$2 \cdot 29 \cdot 149$	$2^2 \cdot 41 \cdot 53$
43	93	.....	$3 \cdot 19 \cdot 149$	.....	$13 \cdot 661$	$3 \cdot 43 \cdot 67$	.....
44	94	$2^2 \cdot 2111$	$2 \cdot 31 \cdot 137$	$2^5 \cdot 3 \cdot 89$	$2 \cdot 4297$	$2^2 \cdot 2161$	$2 \cdot 3^3 \cdot 7 \cdot 23$
45	95	$3 \cdot 5 \cdot 563$	$5 \cdot 1699$	$5 \cdot 1709$	$3^2 \cdot 5 \cdot 191$	$5 \cdot 7 \cdot 13 \cdot 19$	$5 \cdot 37 \cdot 47$
46	96	$2 \cdot 41 \cdot 103$	$2^4 \cdot 3^2 \cdot 59$	$2 \cdot 4273$	$2^2 \cdot 7 \cdot 307$	$2 \cdot 3 \cdot 11 \cdot 131$	$2^3 \cdot 1087$
47	97	.....	$29 \cdot 293$	$3 \cdot 7 \cdot 11 \cdot 37$	.....	.....	$3 \cdot 13 \cdot 223$
48	98	$2^3 \cdot 3 \cdot 11$	$2 \cdot 7 \cdot 607$	$2^2 \cdot 2137$	$2 \cdot 3 \cdot 1433$	$2^3 \cdot 23 \cdot 47$	$2 \cdot 4349$
49	99	$7 \cdot 17 \cdot 71$	$3 \cdot 2833$	$83 \cdot 103$	.....	$3^2 \cdot 31^2$	.....
50	100	$2 \cdot 5^2 \cdot 13^2$	$2^2 \cdot 5^3 \cdot 17$	$2 \cdot 3^2 \cdot 5^2 \cdot 19$	$2^3 \cdot 5^2 \cdot 43$	$2 \cdot 5^2 \cdot 173$	$2^2 \cdot 3 \cdot 5^2 \cdot 29$

Prime Numbers and Factors, 8700–9000.

From	To	8700 8750	8750 8800	8800 8850	8850 8900	8900 8950	8950 9000
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 29$	$2 \cdot 5^4 \cdot 7$	$2^5 \cdot 5^2 \cdot 11$	$2 \cdot 3 \cdot 5^2 \cdot 59$	$2^2 \cdot 5^2 \cdot 89$	$2 \cdot 5^2 \cdot 179$
1	51	$7 \cdot 11 \cdot 113$	$3 \cdot 2917$	$13 \cdot 677$	$53 \cdot 167$	$3^3 \cdot 23 \cdot 43$	.....
2	52	$2 \cdot 19 \cdot 229$	$2^4 \cdot 547$	$2 \cdot 3^3 \cdot 163$	$2^2 \cdot 2213$	$2 \cdot 4451$	$2^3 \cdot 3 \cdot 373$
3	53	$3^2 \cdot 967$	.....	.....	$3 \cdot 13 \cdot 227$	$29 \cdot 307$	$7 \cdot 1279$
4	54	$2^9 \cdot 17$	$2 \cdot 3 \cdot 1459$	$2^2 \cdot 31 \cdot 71$	$2 \cdot 19 \cdot 233$	$2^3 \cdot 3 \cdot 7 \cdot 53$	$2 \cdot 11^2 \cdot 37$
5	55	$5 \cdot 1741$	$5 \cdot 17 \cdot 103$	$3 \cdot 5 \cdot 587$	$5 \cdot 7 \cdot 11 \cdot 23$	$5 \cdot 13 \cdot 137$	$3^2 \cdot 5 \cdot 199$
6	56	$2 \cdot 3 \cdot 1451$	$2^2 \cdot 11 \cdot 199$	$2 \cdot 7 \cdot 17 \cdot 37$	$2^3 \cdot 3^3 \cdot 41$	$2 \cdot 61 \cdot 73$	$2^2 \cdot 2239$
7	57	.....	$3^2 \cdot 7 \cdot 139$	.....	$17 \cdot 521$	$3 \cdot 2969$	$13^2 \cdot 53$
8	58	$2^2 \cdot 7 \cdot 311$	$2 \cdot 29 \cdot 151$	$2^5 \cdot 3 \cdot 367$	$2 \cdot 43 \cdot 103$	$2^2 \cdot 17 \cdot 131$	$2 \cdot 3 \cdot 1493$
9	59	$3 \cdot 2903$	$19 \cdot 461$	$23 \cdot 383$	$3 \cdot 2953$	$59 \cdot 151$	$17^2 \cdot 31$
10	60	$2 \cdot 5 \cdot 13 \cdot 67$	$2^3 \cdot 3 \cdot 5 \cdot 73$	$2 \cdot 5 \cdot 881$	$2^2 \cdot 5 \cdot 443$	$2 \cdot 3^4 \cdot 5 \cdot 11$	$2^8 \cdot 5 \cdot 7$
11	61	$31 \cdot 281$	.....	$3^2 \cdot 11 \cdot 89$	.....	$7 \cdot 19 \cdot 67$	$3 \cdot 29 \cdot 103$
12	62	$2^3 \cdot 3^2 \cdot 11^2$	$2 \cdot 13 \cdot 337$	$2^2 \cdot 2203$	$2 \cdot 3 \cdot 7 \cdot 211$	$2^4 \cdot 557$	$2 \cdot 4481$
13	63	.....	$3 \cdot 23 \cdot 127$	$7 \cdot 1259$	.....	$3 \cdot 2971$	.....
14	64	$2 \cdot 4357$	$2^2 \cdot 7 \cdot 313$	$2 \cdot 3 \cdot 13 \cdot 113$	$2^5 \cdot 277$	$2 \cdot 4457$	$2^2 \cdot 3^3 \cdot 83$
15	65	$3 \cdot 5 \cdot 7 \cdot 83$	$5 \cdot 1753$	$5 \cdot 43 \cdot 41$	$3^2 \cdot 5 \cdot 197$	$5 \cdot 1783$	$5 \cdot 11 \cdot 163$
16	66	$2^2 \cdot 2179$	$2 \cdot 3^2 \cdot 487$	$2^4 \cdot 19 \cdot 29$	$2 \cdot 11 \cdot 13 \cdot 31$	$2^2 \cdot 3 \cdot 743$	$2 \cdot 4483$
17	67	$23 \cdot 379$	$11 \cdot 797$	$3 \cdot 2939$	.....	$37 \cdot 241$	$3 \cdot 7^2 \cdot 61$
18	68	$2 \cdot 3 \cdot 1453$	$2^6 \cdot 137$	$2 \cdot 4409$	$2^2 \cdot 3 \cdot 739$	$2 \cdot 7^3 \cdot 13$	$2^3 \cdot 19 \cdot 59$
19	69	.....	$3 \cdot 37 \cdot 79$	.....	$7^2 \cdot 181$	$3^2 \cdot 991$	.....
20	70	$2^4 \cdot 5 \cdot 109$	$2 \cdot 5 \cdot 877$	$2^2 \cdot 3^2 \cdot 5 \cdot 7^2$	$2 \cdot 5 \cdot 887$	$2^3 \cdot 5 \cdot 223$	$2 \cdot 3 \cdot 5 \cdot 13 \cdot 23$
21	71	$3^3 \cdot 17 \cdot 19$	$7^2 \cdot 179$	.....	$3 \cdot 2957$	$11 \cdot 811$	.....
22	72	$2 \cdot 7^2 \cdot 89$	$2^2 \cdot 3 \cdot 17 \cdot 43$	$2 \cdot 11 \cdot 401$	$2^3 \cdot 1109$	$2 \cdot 3 \cdot 1487$	$2^2 \cdot 2243$
23	73	$11 \cdot 13 \cdot 61$	$31 \cdot 283$	$3 \cdot 17 \cdot 173$	$19 \cdot 467$	.....	$3^2 \cdot 997$
24	74	$2^2 \cdot 3 \cdot 727$	$2 \cdot 41 \cdot 107$	$2^3 \cdot 1103$	$2 \cdot 3^2 \cdot 17 \cdot 29$	$2^2 \cdot 23 \cdot 97$	$2 \cdot 7 \cdot 641$
25	75	$5^2 \cdot 349$	$3^3 \cdot 5^2 \cdot 13$	$5^2 \cdot 353$	$5^3 \cdot 71$	$3 \cdot 5^2 \cdot 7 \cdot 17$	$5^2 \cdot 359$
26	76	$2 \cdot 4363$	$2^3 \cdot 1097$	$2 \cdot 3 \cdot 1471$	$2^2 \cdot 7 \cdot 317$	$2 \cdot 4463$	$2^4 \cdot 3 \cdot 11 \cdot 17$
27	77	$3 \cdot 2909$	$67 \cdot 131$	$7 \cdot 13 \cdot 97$	$3 \cdot 11 \cdot 269$	$79 \cdot 113$	$47 \cdot 191$
28	78	$2^3 \cdot 1091$	$2 \cdot 3 \cdot 7 \cdot 11 \cdot 19$	$2^2 \cdot 2207$	$2 \cdot 23 \cdot 193$	$2^5 \cdot 3^2 \cdot 31$	$2 \cdot 67^2$
29	79	$7 \cdot 29 \cdot 43$	.....	$3^4 \cdot 109$	$13 \cdot 683$	.....	$3 \cdot 41 \cdot 73$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 97$	$2^2 \cdot 5 \cdot 439$	$2 \cdot 5 \cdot 883$	$2^4 \cdot 3 \cdot 5 \cdot 37$	$2 \cdot 5 \cdot 19 \cdot 47$	$2^2 \cdot 5 \cdot 449$
31	81	.....	$3 \cdot 2927$	.....	$83 \cdot 107$	$3 \cdot 13 \cdot 229$	$7 \cdot 1283$
32	82	$2^2 \cdot 37 \cdot 59$	$2 \cdot 4391$	$2^7 \cdot 3 \cdot 23$	$2 \cdot 4441$	$2^2 \cdot 7 \cdot 11 \cdot 29$	$2 \cdot 3^2 \cdot 499$
33	83	$3 \cdot 41 \cdot 71$	.....	$11^2 \cdot 73$	$3^3 \cdot 7 \cdot 47$	.....	$13 \cdot 691$
34	84	$2 \cdot 11 \cdot 397$	$2^4 \cdot 3^2 \cdot 61$	$2 \cdot 7 \cdot 631$	$2^2 \cdot 2221$	$2 \cdot 3 \cdot 1489$	$2^3 \cdot 1123$
35	85	$5 \cdot 1747$	$5 \cdot 7 \cdot 251$	$3 \cdot 5 \cdot 19 \cdot 31$	$5 \cdot 1777$	$5 \cdot 1787$	$3 \cdot 5 \cdot 599$
36	86	$2^5 \cdot 3 \cdot 7 \cdot 13$	$2 \cdot 23 \cdot 191$	$2^2 \cdot 47^2$	$2 \cdot 3 \cdot 1481$	$2^3 \cdot 1117$	$2 \cdot 4493$
37	87	.....	$3 \cdot 29 \cdot 101$	.....	.....	$3^3 \cdot 331$	$11 \cdot 19 \cdot 43$
38	88	$2 \cdot 17 \cdot 257$	$2^2 \cdot 13^3$	$2 \cdot 3^2 \cdot 491$	$2^3 \cdot 11 \cdot 101$	$2 \cdot 41 \cdot 109$	$2^2 \cdot 3 \cdot 7 \cdot 107$
39	89	$3^2 \cdot 971$	$11 \cdot 17 \cdot 47$	.....	$3 \cdot 2963$	$7 \cdot 1277$	$89 \cdot 101$
40	90	$2^2 \cdot 5 \cdot 19 \cdot 23$	$2 \cdot 3 \cdot 5 \cdot 293$	$2^3 \cdot 5 \cdot 13 \cdot 17$	$2 \cdot 5 \cdot 7 \cdot 127$	$2^2 \cdot 3 \cdot 5 \cdot 149$	$2 \cdot 5 \cdot 29 \cdot 31$
41	91	.....	$59 \cdot 149$	$3 \cdot 7 \cdot 421$	$17 \cdot 523$	.....	$3^5 \cdot 37$
42	92	$2 \cdot 3 \cdot 31 \cdot 47$	$2^3 \cdot 7 \cdot 151$	$2 \cdot 4421$	$2^2 \cdot 3^2 \cdot 13 \cdot 19$	$2 \cdot 17 \cdot 263$	$2^5 \cdot 281$
43	93	$7 \cdot 1249$	$3^2 \cdot 977$	$37 \cdot 239$	.....	$3 \cdot 11 \cdot 271$	$17 \cdot 23^2$
44	94	$2^3 \cdot 1093$	$2 \cdot 4397$	$2^3 \cdot 3 \cdot 11 \cdot 67$	$2 \cdot 4447$	$2^4 \cdot 13 \cdot 43$	$2 \cdot 3 \cdot 1499$
45	95	$3 \cdot 5 \cdot 11 \cdot 53$	$5 \cdot 1759$	$5 \cdot 29 \cdot 61$	$3 \cdot 5 \cdot 593$	$5 \cdot 1789$	$5 \cdot 7 \cdot 257$
46	96	$2 \cdot 4373$	$2^2 \cdot 3 \cdot 733$	$2 \cdot 4423$	$2^6 \cdot 139$	$2 \cdot 3^2 \cdot 7 \cdot 71$	$2^2 \cdot 13 \cdot 173$
47	97	.....	$19 \cdot 463$	$3^2 \cdot 983$	$7 \cdot 31 \cdot 41$	$23 \cdot 389$	$3 \cdot 2999$
48	98	$2^2 \cdot 3^7$	$2 \cdot 53 \cdot 83$	$2^4 \cdot 7 \cdot 79$	$2 \cdot 3 \cdot 1483$	$2^2 \cdot 2237$	$2 \cdot 11 \cdot 409$
49	99	$13 \cdot 673$	$3 \cdot 7 \cdot 419$	.....	$11 \cdot 809$	$3 \cdot 19 \cdot 157$	.....
50	100	$2 \cdot 5^4 \cdot 7$	$2^5 \cdot 5^2 \cdot 11$	$2 \cdot 3 \cdot 5^2 \cdot 59$	$2^2 \cdot 5^2 \cdot 89$	$2 \cdot 5^2 \cdot 179$	$2^3 \cdot 3^2 \cdot 5^3$

Prime Numbers and Factors, 9000–9300.

From		9000	9050	9100	9150	9200	9250
To		9050	9100	9150	9200	9250	9300
0	50	$2^3 \cdot 3^2 \cdot 5^3$	$2 \cdot 5^2 \cdot 181$	$2^2 \cdot 5^2 \cdot 7 \cdot 13$	$2 \cdot 3 \cdot 5^2 \cdot 61$	$2^4 \cdot 5^2 \cdot 23$	$2 \cdot 5^3 \cdot 37$
1	51	.....	$3 \cdot 7 \cdot 431$	$19 \cdot 479$	.....	$3 \cdot 3067$	$11 \cdot 29^2$
2	52	$2 \cdot 7 \cdot 643$	$2^2 \cdot 31 \cdot 73$	$2 \cdot 3 \cdot 37 \cdot 41$	$2^6 \cdot 11 \cdot 13$	$2 \cdot 43 \cdot 107$	$2^2 \cdot 3^2 \cdot 257$
3	53	$3 \cdot 3001$	$11 \cdot 823$	.....	$3^4 \cdot 113$	.....	$19 \cdot 487$
4	54	$2^2 \cdot 2251$	$2 \cdot 3^2 \cdot 503$	$2^4 \cdot 569$	$2 \cdot 23 \cdot 199$	$2^2 \cdot 3 \cdot 13 \cdot 59$	$2 \cdot 7 \cdot 661$
5	55	$5 \cdot 1801$	$5 \cdot 1811$	$3 \cdot 5 \cdot 607$	$5 \cdot 1831$	$5 \cdot 7 \cdot 263$	$3 \cdot 5 \cdot 617$
6	56	$2 \cdot 3 \cdot 19 \cdot 79$	$2^5 \cdot 283$	$2 \cdot 29 \cdot 157$	$2^2 \cdot 3 \cdot 7 \cdot 109$	$2 \cdot 4603$	$2^3 \cdot 13 \cdot 89$
7	57	.....	$3 \cdot 3019$	$7 \cdot 1301$	.....	$3^3 \cdot 11 \cdot 31$	.....
8	58	$2^4 \cdot 563$	$2 \cdot 7 \cdot 647$	$2^2 \cdot 3^2 \cdot 11 \cdot 23$	$2 \cdot 19 \cdot 241$	$2^3 \cdot 1151$	$2 \cdot 3 \cdot 1543$
9	59	$3^2 \cdot 7 \cdot 11 \cdot 13$	.....	.....	$3 \cdot 43 \cdot 71$	.....	$47 \cdot 197$
10	60	$2 \cdot 5 \cdot 17 \cdot 53$	$2^2 \cdot 3 \cdot 5 \cdot 151$	$2 \cdot 5 \cdot 911$	$2^3 \cdot 5 \cdot 229$	$2 \cdot 3 \cdot 5 \cdot 307$	$2^2 \cdot 5 \cdot 463$
11	61	.....	$13 \cdot 17 \cdot 41$	$3 \cdot 3037$	.....	$61 \cdot 151$	$3^3 \cdot 7^3$
12	62	$2^2 \cdot 3 \cdot 751$	$2 \cdot 23 \cdot 197$	$2^3 \cdot 17 \cdot 67$	$2 \cdot 3^2 \cdot 509$	$2^2 \cdot 7^2 \cdot 47$	$2 \cdot 11 \cdot 421$
13	63	.....	$3^2 \cdot 19 \cdot 53$	$13 \cdot 701$	$7^2 \cdot 11 \cdot 17$	$3 \cdot 37 \cdot 83$	$59 \cdot 157$
14	64	$2 \cdot 4507$	$2^3 \cdot 11 \cdot 103$	$2 \cdot 3 \cdot 7^2 \cdot 31$	$2^2 \cdot 29 \cdot 79$	$2 \cdot 17 \cdot 271$	$2^4 \cdot 3 \cdot 193$
15	65	$3 \cdot 5 \cdot 601$	$5 \cdot 7^2 \cdot 37$	$5 \cdot 1823$	$3 \cdot 5 \cdot 13 \cdot 47$	$5 \cdot 19 \cdot 97$	$5 \cdot 17 \cdot 109$
16	66	$2^3 \cdot 7^2 \cdot 23$	$2 \cdot 3 \cdot 1511$	$2^2 \cdot 43 \cdot 53$	$2 \cdot 4583$	$2^{10} \cdot 3^2$	$2 \cdot 41 \cdot 113$
17	67	$71 \cdot 127$	.....	$3^2 \cdot 1013$	$89 \cdot 103$	$13 \cdot 709$	$3 \cdot 3089$
18	68	$2 \cdot 3^3 \cdot 167$	$2^2 \cdot 2267$	$2 \cdot 47 \cdot 97$	$2^4 \cdot 3 \cdot 191$	$2 \cdot 11 \cdot 419$	$2^2 \cdot 7 \cdot 331$
19	69	$29 \cdot 311$	$3 \cdot 3023$	$11 \cdot 829$	$53 \cdot 173$	$3 \cdot 7 \cdot 439$	$13 \cdot 23 \cdot 31$
20	70	$2^2 \cdot 5 \cdot 11 \cdot 41$	$2 \cdot 5 \cdot 907$	$2^5 \cdot 3 \cdot 5 \cdot 19$	$2 \cdot 5 \cdot 7 \cdot 131$	$2^2 \cdot 5 \cdot 461$	$2 \cdot 3^2 \cdot 5 \cdot 103$
21	71	$3 \cdot 31 \cdot 97$	$47 \cdot 193$	$7 \cdot 1303$	$3^2 \cdot 1019$	.....	$73 \cdot 127$
22	72	$2 \cdot 13 \cdot 347$	$2^4 \cdot 3^4 \cdot 7$	$2 \cdot 4561$	$2^2 \cdot 2293$	$2 \cdot 3 \cdot 29 \cdot 53$	$2^3 \cdot 19 \cdot 61$
23	73	$7 \cdot 1289$	$43 \cdot 211$	$3 \cdot 3041$	.....	$23 \cdot 401$	$3 \cdot 11 \cdot 281$
24	74	$2^6 \cdot 3 \cdot 47$	$2 \cdot 13 \cdot 349$	$2^2 \cdot 2281$	$2 \cdot 3 \cdot 11 \cdot 139$	$2^3 \cdot 11 \cdot 53$	$2 \cdot 4637$
25	75	$5^2 \cdot 19^2$	$3 \cdot 5^2 \cdot 11^2$	$5^3 \cdot 73$	$5^2 \cdot 367$	$3^2 \cdot 5^2 \cdot 41$	$5^2 \cdot 7 \cdot 53$
26	76	$2 \cdot 4513$	$2^2 \cdot 2269$	$2 \cdot 3^3 \cdot 13^2$	$2^3 \cdot 31 \cdot 37$	$2 \cdot 7 \cdot 659$	$2^2 \cdot 3 \cdot 773$
27	77	$3^2 \cdot 17 \cdot 59$	$29 \cdot 313$	.....	$3 \cdot 7 \cdot 19 \cdot 23$	.....	.....
28	78	$2^2 \cdot 37 \cdot 61$	$2 \cdot 3 \cdot 17 \cdot 89$	$2^3 \cdot 7 \cdot 163$	$2 \cdot 13 \cdot 353$	$2^2 \cdot 3 \cdot 769$	$2 \cdot 4639$
29	79	.....	$7 \cdot 1297$	$3 \cdot 17 \cdot 179$	$67 \cdot 137$	$11 \cdot 839$	$3^2 \cdot 1031$
30	80	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 43$	$2^3 \cdot 5 \cdot 227$	$2 \cdot 5 \cdot 11 \cdot 83$	$2^2 \cdot 3^3 \cdot 5 \cdot 17$	$2 \cdot 5 \cdot 13 \cdot 71$	$2^6 \cdot 5 \cdot 29$
31	81	$11 \cdot 821$	$3^2 \cdot 1009$	$23 \cdot 397$	.....	$3 \cdot 17 \cdot 181$	.....
32	82	$2^3 \cdot 1129$	$2 \cdot 19 \cdot 239$	$2^2 \cdot 3 \cdot 761$	$2 \cdot 4591$	$2^4 \cdot 577$	$2 \cdot 3 \cdot 7 \cdot 13 \cdot 17$
33	83	$3 \cdot 3011$	$31 \cdot 293$	.....	$3 \cdot 3061$	$7 \cdot 1319$	.....
34	84	$2 \cdot 4517$	$2^2 \cdot 3 \cdot 757$	$2 \cdot 4567$	$2^5 \cdot 7 \cdot 41$	$2 \cdot 3^5 \cdot 19$	$2^2 \cdot 11 \cdot 211$
35	85	$5 \cdot 13 \cdot 139$	$5 \cdot 23 \cdot 79$	$3^2 \cdot 5 \cdot 7 \cdot 29$	$5 \cdot 11 \cdot 167$	$5 \cdot 1847$	$3 \cdot 5 \cdot 619$
36	86	$2^2 \cdot 3^2 \cdot 251$	$2 \cdot 7 \cdot 11 \cdot 59$	$2^4 \cdot 571$	$2 \cdot 3 \cdot 1531$	$2^2 \cdot 2309$	$2 \cdot 4643$
37	87	$7 \cdot 1291$	$3 \cdot 13 \cdot 233$	.....	.....	$3 \cdot 3079$	$37 \cdot 251$
38	88	$2 \cdot 4519$	$2^7 \cdot 71$	$2 \cdot 3 \cdot 1523$	$2^2 \cdot 2297$	$2 \cdot 31 \cdot 149$	$2^3 \cdot 3^3 \cdot 43$
39	89	$3 \cdot 23 \cdot 131$	$61 \cdot 149$	$13 \cdot 19 \cdot 37$	$3^2 \cdot 1021$	.....	$7 \cdot 1327$
40	90	$2^4 \cdot 5 \cdot 113$	$2 \cdot 3^2 \cdot 5 \cdot 101$	$2^2 \cdot 5 \cdot 457$	$2 \cdot 5 \cdot 919$	$2^3 \cdot 3 \cdot 5 \cdot 7 \cdot 11$	$2 \cdot 5 \cdot 929$
41	91	.....	.....	$3 \cdot 11 \cdot 277$	$7 \cdot 13 \cdot 101$	.....	$3 \cdot 19 \cdot 163$
42	92	$2 \cdot 3 \cdot 11 \cdot 137$	$2^2 \cdot 2273$	$2 \cdot 7 \cdot 653$	$2^3 \cdot 3 \cdot 383$	$2 \cdot 4621$	$2^2 \cdot 23 \cdot 101$
43	93	.....	$3 \cdot 7 \cdot 433$	$41 \cdot 223$	$29 \cdot 317$	$3^2 \cdot 13 \cdot 79$	.....
44	94	$2^2 \cdot 7 \cdot 17 \cdot 19$	$2 \cdot 4547$	$2^3 \cdot 3^2 \cdot 127$	$2 \cdot 4597$	$2^2 \cdot 2311$	$2 \cdot 3 \cdot 1549$
45	95	$3^3 \cdot 5 \cdot 67$	$5 \cdot 17 \cdot 107$	$5 \cdot 31 \cdot 59$	$3 \cdot 5 \cdot 613$	$5 \cdot 43^2$	$5 \cdot 11 \cdot 13^2$
46	96	$2 \cdot 4523$	$2^3 \cdot 3 \cdot 379$	$2 \cdot 17 \cdot 269$	$2^2 \cdot 11^2 \cdot 19$	$2 \cdot 3 \cdot 23 \cdot 67$	$2^4 \cdot 7 \cdot 83$
47	97	$83 \cdot 109$	$11 \cdot 827$	$3 \cdot 3049$	$17 \cdot 541$	$7 \cdot 1321$	$3^2 \cdot 1033$
48	98	$2^3 \cdot 3 \cdot 13 \cdot 29$	$2 \cdot 4549$	$2^2 \cdot 2287$	$2 \cdot 3^2 \cdot 7 \cdot 73$	$2^5 \cdot 17^2$	$2 \cdot 4649$
49	99	.....	$3^3 \cdot 337$	$7 \cdot 1307$	.....	$3 \cdot 3083$	$17 \cdot 547$
50	100	$2 \cdot 5^2 \cdot 181$	$2^2 \cdot 5^2 \cdot 7 \cdot 13$	$2 \cdot 3 \cdot 5^2 \cdot 61$	$2^4 \cdot 5^2 \cdot 23$	$2 \cdot 5^3 \cdot 37$	$2^2 \cdot 3 \cdot 5^2 \cdot 31$

Prime Numbers and Factors, 9300–9600.

From	To	9300	9350	9400	9450	9500	9550
		9350	9400	9450	9500	9550	9600
0	50	$2^2 \cdot 3 \cdot 5^2 \cdot 31$	$2 \cdot 5^2 \cdot 11 \cdot 17$	$2^3 \cdot 5^2 \cdot 47$	$2 \cdot 3^3 \cdot 5^2 \cdot 7$	$2^2 \cdot 5^3 \cdot 19$	$2 \cdot 5^2 \cdot 191$
1	51	$71 \cdot 131$	$3^2 \cdot 1039$	$7 \cdot 17 \cdot 79$	$13 \cdot 727$	$3 \cdot 3167$	.....
2	52	$2 \cdot 4651$	$2^3 \cdot 7 \cdot 167$	$2 \cdot 3 \cdot 1567$	$2^2 \cdot 17 \cdot 139$	$2 \cdot 4751$	$2^4 \cdot 3 \cdot 199$
3	53	$3 \cdot 7 \cdot 443$	$47 \cdot 199$	.....	$3 \cdot 23 \cdot 137$	$13 \cdot 17 \cdot 43$	$41 \cdot 233$
4	54	$2^3 \cdot 1163$	$2 \cdot 3 \cdot 1559$	$2^2 \cdot 2351$	$2 \cdot 29 \cdot 163$	$2^5 \cdot 3^3 \cdot 11$	$2 \cdot 17 \cdot 281$
5	55	$5 \cdot 1861$	$5 \cdot 1871$	$3^2 \cdot 5 \cdot 11 \cdot 19$	$5 \cdot 31 \cdot 61$	$5 \cdot 1901$	$3 \cdot 5 \cdot 7^2 \cdot 13$
6	56	$2 \cdot 3^2 \cdot 11 \cdot 47$	$2^2 \cdot 2339$	$2 \cdot 4703$	$2^4 \cdot 3 \cdot 197$	$2 \cdot 7^2 \cdot 97$	$2^2 \cdot 2389$
7	57	$41 \cdot 227$	$3 \cdot 3119$	$23 \cdot 409$	$7^2 \cdot 193$	$3 \cdot 3169$	$19 \cdot 503$
8	58	$2^2 \cdot 13 \cdot 179$	$2 \cdot 4679$	$2^6 \cdot 3 \cdot 7^2$	$2 \cdot 4729$	$2^2 \cdot 2377$	$2 \cdot 3^4 \cdot 59$
9	59	$3 \cdot 29 \cdot 107$	$7^2 \cdot 191$	97^2	$3^2 \cdot 1051$	$37 \cdot 257$	$11^2 \cdot 79$
10	60	$2 \cdot 5 \cdot 7^2 \cdot 19$	$2^4 \cdot 3^2 \cdot 5 \cdot 13$	$2 \cdot 5 \cdot 941$	$2^2 \cdot 5 \cdot 11 \cdot 43$	$2 \cdot 3 \cdot 5 \cdot 317$	$2^3 \cdot 5 \cdot 239$
11	61	.....	$11 \cdot 23 \cdot 37$	$3 \cdot 3137$	.....	.....	$3 \cdot 3187$
12	62	$2^5 \cdot 3 \cdot 97$	$2 \cdot 31 \cdot 151$	$2^2 \cdot 13 \cdot 181$	$2 \cdot 3 \cdot 19 \cdot 83$	$2^3 \cdot 29 \cdot 41$	$2 \cdot 7 \cdot 683$
13	63	$67 \cdot 139$	$3 \cdot 3121$	.....	.....	$3^2 \cdot 7 \cdot 151$	$73 \cdot 131$
14	64	$2 \cdot 4657$	$2^2 \cdot 2341$	$2 \cdot 3^2 \cdot 523$	$2^3 \cdot 7 \cdot 13^2$	$2 \cdot 67 \cdot 71$	$2^2 \cdot 3 \cdot 797$
15	65	$3^4 \cdot 5 \cdot 23$	$5 \cdot 1873$	$5 \cdot 7 \cdot 269$	$3 \cdot 5 \cdot 631$	$5 \cdot 11 \cdot 173$	$5 \cdot 1913$
16	66	$2^2 \cdot 17 \cdot 137$	$2 \cdot 3 \cdot 7 \cdot 223$	$2^3 \cdot 11 \cdot 107$	$2 \cdot 4733$	$2^2 \cdot 3 \cdot 13 \cdot 61$	$2 \cdot 4783$
17	67	$7 \cdot 11^3$	$17 \cdot 19 \cdot 29$	$3 \cdot 43 \cdot 73$	.....	$31 \cdot 307$	$3^2 \cdot 1063$
18	68	$2 \cdot 3 \cdot 1553$	$2^3 \cdot 1171$	$2 \cdot 17 \cdot 277$	$2^2 \cdot 3^2 \cdot 263$	$2 \cdot 4759$	$2^5 \cdot 13 \cdot 23$
19	69	.....	$3^3 \cdot 347$	.....	$17 \cdot 557$	$3 \cdot 19 \cdot 167$	$7 \cdot 1367$
20	70	$2^3 \cdot 5 \cdot 233$	$2 \cdot 5 \cdot 937$	$2^2 \cdot 3 \cdot 5 \cdot 157$	$2 \cdot 5 \cdot 947$	$2^4 \cdot 5 \cdot 7 \cdot 17$	$2 \cdot 3 \cdot 5 \cdot 11 \cdot 29$
21	71	$3 \cdot 13 \cdot 239$	.....	.....	$3 \cdot 7 \cdot 11 \cdot 41$	.....	$17 \cdot 563$
22	72	$2 \cdot 59 \cdot 79$	$2^2 \cdot 3 \cdot 11 \cdot 71$	$2 \cdot 7 \cdot 673$	$2^8 \cdot 37$	$2 \cdot 3^2 \cdot 23^2$	$2^2 \cdot 2393$
23	73	.....	$7 \cdot 13 \cdot 103$	$3^3 \cdot 349$	.....	$89 \cdot 107$	$3 \cdot 3191$
24	74	$2^2 \cdot 3^2 \cdot 7 \cdot 37$	$2 \cdot 43 \cdot 109$	$2^4 \cdot 19 \cdot 31$	$2 \cdot 3 \cdot 1579$	$2^2 \cdot 2381$	$2 \cdot 4787$
25	75	$5^2 \cdot 373$	$3 \cdot 5^5$	$5^2 \cdot 13 \cdot 29$	$5^2 \cdot 379$	$3 \cdot 5^2 \cdot 127$	$5^2 \cdot 383$
26	76	$2 \cdot 4663$	$2^5 \cdot 293$	$2 \cdot 3 \cdot 1571$	$2^2 \cdot 23 \cdot 103$	$2 \cdot 11 \cdot 433$	$2^3 \cdot 3^2 \cdot 7 \cdot 19$
27	77	$3 \cdot 3109$	.....	$11 \cdot 857$	$3^6 \cdot 13$	$7 \cdot 1361$	$61 \cdot 157$
28	78	$2^4 \cdot 11 \cdot 53$	$2 \cdot 3^2 \cdot 521$	$2^2 \cdot 2357$	$2 \cdot 7 \cdot 677$	$2^3 \cdot 3 \cdot 397$	$2 \cdot 4789$
29	79	$19 \cdot 491$	$83 \cdot 113$	$3 \cdot 7 \cdot 449$	.....	$13 \cdot 733$	$3 \cdot 31 \cdot 103$
30	80	$2 \cdot 3 \cdot 5 \cdot 311$	$2^2 \cdot 5 \cdot 7 \cdot 67$	$2 \cdot 5 \cdot 23 \cdot 41$	$2^3 \cdot 3 \cdot 5 \cdot 79$	$2 \cdot 5 \cdot 953$	$2^2 \cdot 5 \cdot 479$
31	81	$7 \cdot 31 \cdot 43$	$3 \cdot 53 \cdot 59$	.....	$19 \cdot 499$	$3^3 \cdot 353$	$11 \cdot 13 \cdot 67$
32	82	$2^2 \cdot 2333$	$2 \cdot 4691$	$2^3 \cdot 3^2 \cdot 131$	$2 \cdot 11 \cdot 431$	$2^2 \cdot 2383$	$2 \cdot 3 \cdot 1597$
33	83	$3^2 \cdot 17 \cdot 61$	$11 \cdot 853$	.....	$3 \cdot 29 \cdot 109$	.....	$7 \cdot 37^2$
34	84	$2 \cdot 13 \cdot 359$	$2^3 \cdot 3 \cdot 17 \cdot 23$	$2 \cdot 53 \cdot 89$	$2^2 \cdot 2371$	$2 \cdot 3 \cdot 7 \cdot 227$	$2^4 \cdot 599$
35	85	$5 \cdot 1867$	$5 \cdot 1877$	$3 \cdot 5 \cdot 17 \cdot 37$	$5 \cdot 7 \cdot 271$	$5 \cdot 1907$	$3^3 \cdot 5 \cdot 71$
36	86	$2^3 \cdot 3 \cdot 389$	$2 \cdot 13 \cdot 19^2$	$2^2 \cdot 7 \cdot 337$	$2 \cdot 3^2 \cdot 17 \cdot 31$	$2^6 \cdot 149$	$2 \cdot 4793$
37	87	.....	$3^2 \cdot 7 \cdot 149$	.....	$53 \cdot 179$	$3 \cdot 11 \cdot 17^2$	.....
38	88	$2 \cdot 7 \cdot 23 \cdot 29$	$2^2 \cdot 2347$	$2 \cdot 3 \cdot 11^2 \cdot 13$	$2^4 \cdot 593$	$2 \cdot 19 \cdot 251$	$2^2 \cdot 3 \cdot 17 \cdot 47$
39	89	$3 \cdot 11 \cdot 283$	$41 \cdot 229$	.....	$3 \cdot 3163$	.....	$43 \cdot 223$
40	90	$2^2 \cdot 5 \cdot 467$	$2 \cdot 3 \cdot 5 \cdot 313$	$2^5 \cdot 5 \cdot 59$	$2 \cdot 5 \cdot 13 \cdot 73$	$2^2 \cdot 3^2 \cdot 5 \cdot 53$	$2 \cdot 5 \cdot 7 \cdot 137$
41	91	.....	.....	$3^2 \cdot 1049$	.....	$7 \cdot 29 \cdot 47$	$3 \cdot 23 \cdot 139$
42	92	$2 \cdot 3^3 \cdot 173$	$2^4 \cdot 587$	$2 \cdot 4721$	$2^2 \cdot 3 \cdot 7 \cdot 113$	$2 \cdot 13 \cdot 369$	$2^3 \cdot 11 \cdot 109$
43	93	.....	$3 \cdot 31 \cdot 101$	$7 \cdot 19 \cdot 71$	$11 \cdot 863$	$3 \cdot 31 \cdot 81$	$53 \cdot 181$
44	94	$2^7 \cdot 73$	$2 \cdot 7 \cdot 11 \cdot 61$	$2^2 \cdot 3 \cdot 787$	$2 \cdot 47 \cdot 101$	$2^3 \cdot 1193$	$2 \cdot 3^2 \cdot 13 \cdot 41$
45	95	$3 \cdot 5 \cdot 7 \cdot 89$	$5 \cdot 1879$	$5 \cdot 1889$	$3^2 \cdot 5 \cdot 211$	$5 \cdot 23 \cdot 83$	$5 \cdot 19 \cdot 101$
46	96	$2 \cdot 4673$	$2^2 \cdot 3^4 \cdot 29$	$2 \cdot 4723$	$2^3 \cdot 1187$	$2 \cdot 3 \cdot 37 \cdot 43$	$2^2 \cdot 2399$
47	97	$13 \cdot 719$	.....	$3 \cdot 47 \cdot 67$	.....	.....	$3 \cdot 7 \cdot 457$
48	98	$2^2 \cdot 3 \cdot 19 \cdot 41$	$2 \cdot 37 \cdot 127$	$2^3 \cdot 1181$	$2 \cdot 3 \cdot 1583$	$2^2 \cdot 7 \cdot 11 \cdot 31$	$2 \cdot 4799$
49	99	.....	$3 \cdot 13 \cdot 241$	$11 \cdot 859$	$7 \cdot 23 \cdot 59$	$3^2 \cdot 1061$	$29 \cdot 331$
50	100	$2 \cdot 5^2 \cdot 11 \cdot 17$	$2^3 \cdot 5^2 \cdot 47$	$2 \cdot 3^3 \cdot 5^2 \cdot 7$	$2^2 \cdot 5^3 \cdot 19$	$2 \cdot 5^2 \cdot 191$	$2^7 \cdot 3 \cdot 5^2$

Prime Numbers and Factors, 9600–9900.

From	To	9600	9650	9700	9750	9800	9850
		9650	9700	9750	9800	9850	9900
0	50	$2^7 \cdot 3 \cdot 5^2$	$2 \cdot 5^2 \cdot 193$	$2^2 \cdot 5^2 \cdot 97$	$2 \cdot 3 \cdot 5^3 \cdot 13$	$2^3 \cdot 5^2 \cdot 7^2$	$2 \cdot 5^2 \cdot 197$
1	51	.....	$3 \cdot 3217$	$89 \cdot 109$	$7^2 \cdot 199$	$3^4 \cdot 11^2$	.....
2	52	$2 \cdot 4801$	$2^2 \cdot 19 \cdot 127$	$2 \cdot 3^2 \cdot 7^2 \cdot 11$	$2^3 \cdot 23 \cdot 53$	$2 \cdot 13^2 \cdot 29$	$2^2 \cdot 3 \cdot 821$
3	53	$3^2 \cdot 11 \cdot 97$	$7^2 \cdot 197$	$31 \cdot 313$	$3 \cdot 3251$	.....	$59 \cdot 167$
4	54	$2^2 \cdot 7^4$	$2 \cdot 3 \cdot 1609$	$2^3 \cdot 1213$	$2 \cdot 4877$	$2^2 \cdot 3 \cdot 19 \cdot 43$	$2 \cdot 13 \cdot 379$
5	55	$5 \cdot 17 \cdot 113$	$5 \cdot 1931$	$3 \cdot 5 \cdot 647$	$5 \cdot 1951$	$5 \cdot 37 \cdot 53$	$3^3 \cdot 5 \cdot 73$
6	56	$2 \cdot 3 \cdot 1601$	$2^3 \cdot 17 \cdot 71$	$2 \cdot 23 \cdot 211$	$2^2 \cdot 3^2 \cdot 271$	$2 \cdot 4903$	$2^7 \cdot 7 \cdot 11$
7	57	$13 \cdot 739$	$3^2 \cdot 29 \cdot 37$	$17 \cdot 571$	$11 \cdot 887$	$3 \cdot 7 \cdot 467$	.....
8	58	$2^3 \cdot 1201$	$2 \cdot 11 \cdot 439$	$2^2 \cdot 3 \cdot 809$	$2 \cdot 7 \cdot 17 \cdot 41$	$2^4 \cdot 613$	$2 \cdot 3 \cdot 31 \cdot 53$
9	59	$3 \cdot 3203$	$13 \cdot 743$	$7 \cdot 19 \cdot 73$	$3 \cdot 3253$	$17 \cdot 577$	.....
10	60	$2 \cdot 5 \cdot 31^2$	$2^2 \cdot 3 \cdot 5 \cdot 7 \cdot 23$	$2 \cdot 5 \cdot 971$	$2^5 \cdot 5 \cdot 61$	$2 \cdot 3^3 \cdot 5 \cdot 109$	$2^2 \cdot 5 \cdot 17 \cdot 29$
11	61	$7 \cdot 1373$	.....	$3^2 \cdot 13 \cdot 83$	$43 \cdot 227$	.....	$3 \cdot 19 \cdot 173$
12	62	$2^2 \cdot 3^3 \cdot 89$	$2 \cdot 4831$	$2^4 \cdot 607$	$2 \cdot 3 \cdot 1627$	$2^2 \cdot 11 \cdot 223$	$2 \cdot 4931$
13	63	.....	$3 \cdot 3221$	$11 \cdot 883$	$13 \cdot 751$	$3 \cdot 3271$	$7 \cdot 1409$
14	64	$2 \cdot 11 \cdot 19 \cdot 23$	$2^6 \cdot 151$	$2 \cdot 3 \cdot 1619$	$2^2 \cdot 2441$	$2 \cdot 7 \cdot 701$	$2^3 \cdot 3^2 \cdot 137$
15	65	$3 \cdot 5 \cdot 641$	$5 \cdot 1933$	$5 \cdot 29 \cdot 67$	$3^2 \cdot 5 \cdot 7 \cdot 31$	$5 \cdot 13 \cdot 151$	$5 \cdot 1973$
16	66	$2^4 \cdot 601$	$2 \cdot 3^3 \cdot 179$	$2^2 \cdot 7 \cdot 347$	$2 \cdot 19 \cdot 257$	$2^3 \cdot 3 \cdot 409$	$2 \cdot 4933$
17	67	$59 \cdot 163$	$7 \cdot 1381$	$3 \cdot 41 \cdot 79$	.....	.....	$3 \cdot 11 \cdot 13 \cdot 23$
18	68	$2 \cdot 3 \cdot 7 \cdot 229$	$2^2 \cdot 2417$	$2 \cdot 43 \cdot 113$	$2^3 \cdot 3 \cdot 11 \cdot 37$	$2 \cdot 4909$	$2^2 \cdot 2467$
19	69	.....	$3 \cdot 11 \cdot 293$	.....	.....	$3^2 \cdot 1091$	$71 \cdot 139$
20	70	$2^2 \cdot 5 \cdot 13 \cdot 37$	$2 \cdot 5 \cdot 967$	$2^3 \cdot 3^5 \cdot 5$	$2 \cdot 5 \cdot 977$	$2^2 \cdot 5 \cdot 491$	$2 \cdot 3 \cdot 5 \cdot 7 \cdot 47$
21	71	$3^2 \cdot 1069$	$19 \cdot 509$	.....	$3 \cdot 3257$	$7 \cdot 23 \cdot 61$	.....
22	72	$2 \cdot 17 \cdot 283$	$2^3 \cdot 3 \cdot 13 \cdot 31$	$2 \cdot 4861$	$2^2 \cdot 7 \cdot 349$	$2 \cdot 3 \cdot 1637$	$2^4 \cdot 617$
23	73	.....	$17 \cdot 569$	$3 \cdot 7 \cdot 463$	$29 \cdot 337$	$11 \cdot 19 \cdot 47$	$3^2 \cdot 1097$
24	74	$2^3 \cdot 3 \cdot 401$	$2 \cdot 7 \cdot 691$	$2^2 \cdot 11 \cdot 13 \cdot 17$	$2 \cdot 3^3 \cdot 181$	$2^5 \cdot 307$	$2 \cdot 4937$
25	75	$5^3 \cdot 7 \cdot 11$	$3^2 \cdot 5^2 \cdot 43$	$5^2 \cdot 389$	$5^2 \cdot 17 \cdot 23$	$3 \cdot 5^2 \cdot 131$	$5^3 \cdot 79$
26	76	$2 \cdot 4813$	$2^2 \cdot 41 \cdot 59$	$2 \cdot 3 \cdot 1621$	$2^4 \cdot 13 \cdot 47$	$2 \cdot 17^3$	$2^2 \cdot 3 \cdot 823$
27	77	$3 \cdot 3209$	.....	$71 \cdot 137$	$3 \cdot 3259$	$31 \cdot 317$	$7 \cdot 17 \cdot 83$
28	78	$2^2 \cdot 29 \cdot 83$	$2 \cdot 3 \cdot 1613$	$2^9 \cdot 19$	$2 \cdot 4889$	$2^2 \cdot 3^3 \cdot 7 \cdot 13$	$2 \cdot 11 \cdot 449$
29	79	.....	.....	$3^2 \cdot 23 \cdot 47$	$7 \cdot 11 \cdot 127$	.....	$3 \cdot 37 \cdot 89$
30	80	$2 \cdot 3^2 \cdot 5 \cdot 107$	$2^4 \cdot 5 \cdot 11^2$	$2 \cdot 5 \cdot 7 \cdot 139$	$2^2 \cdot 3 \cdot 5 \cdot 163$	$2 \cdot 5 \cdot 983$	$2^3 \cdot 5 \cdot 13 \cdot 19$
31	81	.....	$3 \cdot 7 \cdot 461$	$37 \cdot 263$	.....	$3 \cdot 29 \cdot 113$	$41 \cdot 241$
32	82	$2^5 \cdot 7 \cdot 43$	$2 \cdot 47 \cdot 103$	$2^2 \cdot 3 \cdot 811$	$2 \cdot 67 \cdot 73$	$2^3 \cdot 1229$	$2 \cdot 3^4 \cdot 61$
33	83	$3 \cdot 13^2 \cdot 19$	$23 \cdot 421$	.....	$3^2 \cdot 1087$	.....	.....
34	84	$2 \cdot 4817$	$2^2 \cdot 3^2 \cdot 269$	$2 \cdot 31 \cdot 157$	$2^3 \cdot 1223$	$2 \cdot 3 \cdot 11 \cdot 149$	$2^2 \cdot 7 \cdot 353$
35	85	$5 \cdot 41 \cdot 47$	$5 \cdot 13 \cdot 149$	$3 \cdot 5 \cdot 11 \cdot 59$	$5 \cdot 19 \cdot 103$	$5 \cdot 7 \cdot 281$	$3 \cdot 5 \cdot 659$
36	86	$2^2 \cdot 3 \cdot 11 \cdot 73$	$2 \cdot 29 \cdot 167$	$2^3 \cdot 1217$	$2 \cdot 3 \cdot 7 \cdot 233$	$2^2 \cdot 2459$	$2 \cdot 4943$
37	87	$23 \cdot 419$	$3 \cdot 3229$	$7 \cdot 13 \cdot 107$	.....	$3^2 \cdot 1093$	.....
38	88	$2 \cdot 61 \cdot 79$	$2^3 \cdot 7 \cdot 173$	$2 \cdot 3^2 \cdot 541$	$2^2 \cdot 1247$	$2 \cdot 4919$	$2^5 \cdot 3 \cdot 103$
39	89	$3^4 \cdot 7 \cdot 17$	.....	.....	$3 \cdot 13 \cdot 251$	.....	$11 \cdot 29 \cdot 31$
40	90	$2^3 \cdot 5 \cdot 241$	$2 \cdot 3 \cdot 5 \cdot 17 \cdot 19$	$2^2 \cdot 5 \cdot 487$	$2 \cdot 5 \cdot 11 \cdot 89$	$2^4 \cdot 3 \cdot 5 \cdot 41$	$2 \cdot 5 \cdot 23 \cdot 43$
41	91	$31 \cdot 311$	$11 \cdot 881$	$3 \cdot 17 \cdot 191$	.....	$13 \cdot 757$	$3^2 \cdot 7 \cdot 157$
42	92	$2 \cdot 3 \cdot 1607$	$2^2 \cdot 2423$	$2 \cdot 4871$	$2^6 \cdot 3^2 \cdot 17$	$2 \cdot 7 \cdot 19 \cdot 37$	$2^2 \cdot 2473$
43	93	.....	$3^3 \cdot 359$	.....	$7 \cdot 1399$	$3 \cdot 17 \cdot 193$	$13 \cdot 761$
44	94	$2^2 \cdot 2411$	$2 \cdot 37 \cdot 131$	$2^4 \cdot 3 \cdot 7 \cdot 29$	$2 \cdot 59 \cdot 83$	$2^2 \cdot 23 \cdot 107$	$2 \cdot 3 \cdot 17 \cdot 97$
45	95	$3 \cdot 5 \cdot 643$	$5 \cdot 7 \cdot 277$	$5 \cdot 1949$	$3 \cdot 5 \cdot 653$	$5 \cdot 11 \cdot 179$	$5 \cdot 1979$
46	96	$2 \cdot 7 \cdot 13 \cdot 53$	$2^4 \cdot 3 \cdot 101$	$2 \cdot 11 \cdot 443$	$2^2 \cdot 31 \cdot 79$	$2 \cdot 3^2 \cdot 547$	$2^3 \cdot 1237$
47	97	$11 \cdot 877$	.....	$3^3 \cdot 19^2$	$97 \cdot 101$	$43 \cdot 229$	$3 \cdot 3299$
48	98	$2^4 \cdot 3^2 \cdot 67$	$2 \cdot 13 \cdot 373$	$2^2 \cdot 2437$	$2 \cdot 3 \cdot 23 \cdot 71$	$2^3 \cdot 1231$	$2 \cdot 7^2 \cdot 101$
49	99	.....	$3 \cdot 53 \cdot 61$	.....	$41 \cdot 239$	$3 \cdot 7^2 \cdot 67$	$19 \cdot 521$
50	100	$2 \cdot 5^2 \cdot 193$	$2^2 \cdot 5^2 \cdot 97$	$2 \cdot 3 \cdot 5^3 \cdot 13$	$2^3 \cdot 5^2 \cdot 7^2$	$2 \cdot 5^2 \cdot 197$	$2^2 \cdot 3^2 \cdot 5^2 \cdot 11$

Prime Numbers and Factors, 9900–10200.

From	To	9900 9950	9950 10000	10000 10050	10050 10100	10100 10150	10150 10200
0	50	$2^2 \cdot 3^2 \cdot 5^2 \cdot 11$	$2 \cdot 5^2 \cdot 199$	$2^4 \cdot 5^4$	$2 \cdot 3 \cdot 5^2 \cdot 67$	$2^2 \cdot 5^2 \cdot 101$	$2 \cdot 5^2 \cdot 7 \cdot 29$
1	51	.....	$3 \cdot 31 \cdot 107$	$73 \cdot 137$	$19 \cdot 23^2$	$3 \cdot 7 \cdot 13 \cdot 37$	.....
2	52	$2 \cdot 4951$	$2^5 \cdot 311$	$2 \cdot 3 \cdot 1667$	$2^2 \cdot 7 \cdot 359$	$2 \cdot 5051$	$2^3 \cdot 3^3 \cdot 47$
3	53	$3 \cdot 3301$	$37 \cdot 269$	$7 \cdot 1429$	$3^2 \cdot 1117$	.....	$11 \cdot 13 \cdot 71$
4	54	$2^4 \cdot 619$	$2 \cdot 3^2 \cdot 7 \cdot 79$	$2^0 \cdot 41 \cdot 61$	$2 \cdot 11 \cdot 457$	$2^3 \cdot 3 \cdot 421$	$2 \cdot 5077$
5	55	$5 \cdot 7 \cdot 283$	$5 \cdot 11 \cdot 181$	$3 \cdot 5 \cdot 23 \cdot 29$	$5 \cdot 2011$	$5 \cdot 43 \cdot 47$	$3 \cdot 5 \cdot 677$
6	56	$2 \cdot 3 \cdot 13 \cdot 127$	$2^2 \cdot 19 \cdot 131$	$2 \cdot 5003$	$2^3 \cdot 3 \cdot 419$	$2 \cdot 31 \cdot 163$	$2^2 \cdot 2539$
7	57	.....	$3 \cdot 3319$	.....	$89 \cdot 113$	$3^2 \cdot 1123$	$7 \cdot 1451$
8	58	$2^2 \cdot 2477$	$2 \cdot 13 \cdot 383$	$2^3 \cdot 3^2 \cdot 139$	$2 \cdot 47 \cdot 107$	$2^2 \cdot 7 \cdot 19^2$	$2 \cdot 3 \cdot 1693$
9	59	$3^3 \cdot 367$	$23 \cdot 433$	.....	$3 \cdot 7 \cdot 479$	$11 \cdot 919$	.....
10	60	$2 \cdot 5 \cdot 991$	$2^3 \cdot 3 \cdot 5 \cdot 83$	$2 \cdot 5 \cdot 7 \cdot 11 \cdot 13$	$2^2 \cdot 5 \cdot 503$	$2 \cdot 3 \cdot 5 \cdot 337$	$2^4 \cdot 5 \cdot 127$
11	61	$11 \cdot 17 \cdot 53$	$7 \cdot 1423$	$3 \cdot 47 \cdot 71$	.....	.....	$3^2 \cdot 1129$
12	62	$2^3 \cdot 3 \cdot 7 \cdot 59$	$2 \cdot 17 \cdot 293$	$2^2 \cdot 2503$	$2 \cdot 3^2 \cdot 13 \cdot 43$	$2^7 \cdot 79$	$2 \cdot 5081$
13	63	$23 \cdot 431$	$3^5 \cdot 41$	$17 \cdot 19 \cdot 31$	$29 \cdot 347$	$3 \cdot 3371$	.....
14	64	$2 \cdot 4957$	$2^2 \cdot 47 \cdot 53$	$2 \cdot 3 \cdot 1669$	$2^4 \cdot 17 \cdot 37$	$2 \cdot 13 \cdot 389$	$2^2 \cdot 3 \cdot 7 \cdot 11^2$
15	65	$3 \cdot 5 \cdot 661$	$5 \cdot 1993$	$5 \cdot 2003$	$3 \cdot 5 \cdot 11 \cdot 61$	$5 \cdot 7 \cdot 17^2$	$5 \cdot 19 \cdot 107$
16	66	$2^2 \cdot 37 \cdot 67$	$2 \cdot 3 \cdot 11 \cdot 151$	$2^5 \cdot 313$	$2 \cdot 7 \cdot 719$	$2^2 \cdot 3^2 \cdot 281$	$2 \cdot 13 \cdot 17 \cdot 23$
17	67	$47 \cdot 211$	.....	$3^3 \cdot 7 \cdot 53$	.....	$67 \cdot 151$	$3 \cdot 3389$
18	68	$2 \cdot 3^2 \cdot 19 \cdot 29$	$2^4 \cdot 7 \cdot 89$	$2 \cdot 5009$	$2^2 \cdot 3 \cdot 839$	$2 \cdot 5059$	$2^3 \cdot 31 \cdot 41$
19	69	$7 \cdot 13 \cdot 109$	$3 \cdot 3323$	$43 \cdot 233$	.....	$3 \cdot 3373$	.....
20	70	$2^6 \cdot 5 \cdot 31$	$2 \cdot 5 \cdot 997$	$2^2 \cdot 3 \cdot 5 \cdot 167$	$2 \cdot 5 \cdot 19 \cdot 53$	$2^3 \cdot 5 \cdot 11 \cdot 23$	$2 \cdot 3^2 \cdot 5 \cdot 113$
21	71	$3 \cdot 3307$	$13^2 \cdot 59$	$11 \cdot 911$	$3^3 \cdot 373$	$29 \cdot 349$	$7 \cdot 1453$
22	72	$2 \cdot 11^2 \cdot 41$	$2^2 \cdot 3^2 \cdot 277$	$2 \cdot 5011$	$2^3 \cdot 1259$	$2 \cdot 3 \cdot 7 \cdot 241$	$2^2 \cdot 2543$
23	73	.....	.....	$3 \cdot 13 \cdot 257$	$7 \cdot 1439$	$53 \cdot 191$	$3 \cdot 3391$
24	74	$2^2 \cdot 3 \cdot 827$	$2 \cdot 4987$	$2^3 \cdot 7 \cdot 179$	$2 \cdot 3 \cdot 23 \cdot 73$	$2^2 \cdot 2531$	$2 \cdot 5087$
25	75	$5^2 \cdot 397$	$3 \cdot 5^2 \cdot 7 \cdot 19$	$5^2 \cdot 401$	$5^2 \cdot 13 \cdot 31$	$3^4 \cdot 5^3$	$5^2 \cdot 11 \cdot 37$
26	76	$2 \cdot 7 \cdot 709$	$2^3 \cdot 29 \cdot 43$	$2 \cdot 3^2 \cdot 557$	$2^2 \cdot 11 \cdot 229$	$2 \cdot 61 \cdot 83$	$2^6 \cdot 3 \cdot 53$
27	77	$3^2 \cdot 1103$	$11 \cdot 907$	$37 \cdot 271$	$3 \cdot 3359$	$13 \cdot 19 \cdot 41$	.....
28	78	$2^3 \cdot 17 \cdot 73$	$2 \cdot 3 \cdot 1663$	$2^2 \cdot 23 \cdot 109$	$2 \cdot 5039$	$2^4 \cdot 3 \cdot 211$	$2 \cdot 7 \cdot 727$
29	79	.....	$17 \cdot 587$	$3 \cdot 3343$	.....	$7 \cdot 1447$	$3^3 \cdot 13 \cdot 29$
30	80	$2 \cdot 3 \cdot 5 \cdot 331$	$2^2 \cdot 5 \cdot 499$	$2 \cdot 5 \cdot 17 \cdot 59$	$2^5 \cdot 3^2 \cdot 5 \cdot 7$	$2 \cdot 5 \cdot 1013$	$2^2 \cdot 5 \cdot 509$
31	81	.....	$3^2 \cdot 1109$	$7 \cdot 1433$	$17 \cdot 593$	$3 \cdot 11 \cdot 307$	.....
32	82	$2^2 \cdot 13 \cdot 191$	$2 \cdot 7 \cdot 23 \cdot 31$	$2^4 \cdot 3 \cdot 11 \cdot 19$	$2 \cdot 71^2$	$2^2 \cdot 17 \cdot 149$	$2 \cdot 3 \cdot 1697$
33	83	$3 \cdot 7 \cdot 11 \cdot 43$	$67 \cdot 149$	$79 \cdot 127$	$3 \cdot 3361$	.....	$17 \cdot 599$
34	84	$2 \cdot 4967$	$2^3 \cdot 3 \cdot 13$	$2 \cdot 29 \cdot 173$	$2^2 \cdot 2521$	$2 \cdot 3^3 \cdot 563$	$2^3 \cdot 19 \cdot 67$
35	85	$5 \cdot 1987$	$5 \cdot 1997$	$3^2 \cdot 5 \cdot 223$	$5 \cdot 2017$	$5 \cdot 2027$	$3 \cdot 5 \cdot 7 \cdot 97$
36	86	$2^4 \cdot 3^3 \cdot 23$	$2 \cdot 4993$	$2^2 \cdot 13 \cdot 193$	$2 \cdot 3 \cdot 41^2$	$2^3 \cdot 7 \cdot 181$	$2 \cdot 11 \cdot 463$
37	87	$19 \cdot 523$	$3 \cdot 3329$	.....	$7 \cdot 11 \cdot 131$	$3 \cdot 31 \cdot 109$	$61 \cdot 167$
38	88	$2 \cdot 4969$	$2^2 \cdot 11 \cdot 227$	$2 \cdot 3 \cdot 7 \cdot 239$	$2^3 \cdot 13 \cdot 97$	$2 \cdot 37 \cdot 137$	$2^2 \cdot 3^2 \cdot 283$
39	89	$3 \cdot 3313$	$7 \cdot 1427$	..... .	$3^2 \cdot 19 \cdot 59$	.....	$23 \cdot 443$
40	90	$2^2 \cdot 5 \cdot 7 \cdot 71$	$2 \cdot 3^3 \cdot 5 \cdot 37$	$2^3 \cdot 5 \cdot 251$	$2 \cdot 5 \cdot 1009$	$2^2 \cdot 3 \cdot 5 \cdot 13^2$	$2 \cdot 5 \cdot 1019$
41	91	.....	$97 \cdot 103$	$3 \cdot 3347$	.....	....	$3 \cdot 43 \cdot 79$
42	92	$2 \cdot 3 \cdot 1657$	$2^3 \cdot 1249$	$2 \cdot 5021$	$2^2 \cdot 3 \cdot 29^2$	$2 \cdot 11 \cdot 461$	$2^4 \cdot 7^2 \cdot 13$
43	93	$61 \cdot 163$	$3 \cdot 3331$	$11^2 \cdot 83$	.....	$3^2 \cdot 7^2 \cdot 23$	.....
44	94	$2^3 \cdot 11 \cdot 113$	$2 \cdot 19 \cdot 263$	$2^2 \cdot 3^4 \cdot 31$	$2 \cdot 7^2 \cdot 103$	$2^5 \cdot 317$	$2 \cdot 3 \cdot 1699$
45	95	$3^2 \cdot 5 \cdot 13 \cdot 17$	$5 \cdot 1999$	$5 \cdot 7^2 \cdot 41$	$3 \cdot 5 \cdot 673$	$5 \cdot 2029$	$5 \cdot 2039$
46	96	$2 \cdot 4973$	$2^2 \cdot 3 \cdot 7^2 \ 17$	$2 \cdot 5023$	$2^4 \cdot 631$	$2 \cdot 3 \cdot 19 \cdot 89$	$2^2 \cdot 2549$
47	97	$7^3 \cdot 29$	$13 \cdot 769$	$3 \cdot 17 \cdot 197$	$23 \cdot 439$	$73 \cdot 139$	$3^2 \cdot 11 \cdot 103$
48	98	$2^2 \cdot 3 \cdot 829$	$2 \cdot 4999$	$2^6 \cdot 157$	$2 \cdot 3^3 \cdot 11 \cdot 17$	$2^2 \cdot 43 \cdot 59$	$2 \cdot 5099$
49	99	.....	$3^2 \cdot 11 \cdot 101$	$13 \cdot 773$	.....	$3 \cdot 17 \cdot 199$	$7 \cdot 31 \cdot 47$
50	100	$2 \cdot 5^2 \cdot 199$	$2^4 \cdot 5^4$	$2 \cdot 3 \cdot 5^2 \cdot 67$	$2^2 \cdot 5^2 \cdot 101$	$2 \cdot 5^2 \cdot 7 \cdot 29$	$2^3 \cdot 3 \cdot 5^2 \cdot 17$

Table of Leads.

Table of Leads.

This table contains all the leads that can be obtained with any possible combination of the change gears furnished with Universal Milling Machines made by Brown & Sharpe Mfg. Co., even though some of the leads are not available for use on account of the gears interfering or not reaching. Combinations of gears that are too small in diameter to reach for right-hand spirals can generally be used for left-hand spirals, as the reverse gear is then required and will enable the gears to reach.

The two driving gears or the two driven gears of any combination can be transposed, but a driver must not be substituted for a driven or vice versa. Four different arrangements of the gears of any combination are thus possible without changing the ratio, and when one arrangement interferes or will not reach, the others should be tried. Thus, the gears to give a lead of 3.60″ are: drivers, 100 teeth and 32 teeth; driven 24 teeth and 48 teeth. By transposing the gears, the following four arrangements may be obtained.

	1st.	*2d.*	*3d.*	*4th.*	
Gear on screw	100	32	100	32	Drivers.
1st gear on stud	32	100	32	100	
2d gear on Stud	24	24	48	48	Driven.
Gear on Worm	48	48	24	24	

The first arrangement, however, is the only one available, owing to the interference of the gears in the others preventing their meshing properly.

When very short leads are required, it is preferable to disengage the worm wheel and connect the gearing directly to the spiral head spindle (using the differential indexing centre) instead of to the worm shaft. This method gives leads one fortieth of the leads given in the table for the same combinations of gears. Thus, for a lead of 6.160″ the table calls for gear on worm 56 teeth, 1st gear on stud 40 teeth, 2d gear on stud 44 teeth and

gear on screw 100 teeth. Putting the 56 tooth gear on the spindle instead of on the worm, gives a lead of $\frac{6.160}{40} = .154''$.

With this method very short leads may be obtained without excessively straining the mechanism but the regular means of indexing the work cannot be employed. A special face plate or dial can be used or another method is to have the number of teeth in the gear on the spindle some multiple of the number required to be indexed, swinging the gears out of mesh and advancing the gear on spindle the number of teeth required to index the work one division, at each indexing. Thus, if 9 divisions are required with a lead of .261″, we select a lead from the table equal to about $.261'' \times 40 = 10.440''$, where the gear on worm (which will now be the gear on spindle) is some multiple of 9, as 72. The nearest lead is 10.467″, which gives $\frac{10.467}{40} = .2617''$ lead, giving an error of .0007″. To index the work, the gear on spindle is advanced $\frac{72}{9} = 8$ teeth at each indexing.

Table of Leads, .670″ to 2.182″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
.670	24	86	24	100	1.527	24	44	28	100	1.886	24	56	44	100
.781	24	86	28	100	1.550	24	72	40	86	1.905	24	56	32	72
.800	24	72	24	100	1.556	28	72	40	100	1.919	24	64	44	86
.893	24	86	32	100	1.563	24	86	56	100	1.920	24	40	32	100
.900	24	64	24	100	1.563	28	86	48	100	1.925	28	64	44	100
.930	24	72	24	86	1.595	24	56	32	86	1.944	24	48	28	72
.933	24	72	28	100	1.600	24	48	32	100	1.944	28	64	32	72
1.029	24	56	24	100	1.600	28	56	32	100	1.954	24	40	28	86
1.042	28	86	32	100	1.600	24	72	48	100	1.956	32	72	44	100
1.047	24	64	24	86	1.607	24	56	24	64	1.990	28	72	44	86
1.050	24	64	28	100	1.628	24	48	28	86	1.993	24	56	40	86
1.067	24	72	32	100	1.628	28	64	32	86	2.000	24	40	24	72
1.085	24	72	28	86	1.637	32	86	44	100	2.000	24	48	40	100
1.116	24	86	40	100	1.650	24	64	44	100	2.000	28	56	40	100
1.196	24	56	24	86	1.667	24	56	28	72	2.000	32	64	40	100
1.200	24	48	24	100	1.667	24	48	24	72	2.009	24	86	72	100
1.200	24	56	28	100	1.667	24	64	32	72	2.030	24	44	32	86
1.200	24	64	32	100	1.674	24	40	24	86	2.035	28	64	40	86
1.221	24	64	28	86	1.680	24	40	28	100	2.036	28	44	32	100
1.228	24	86	44	100	1.706	24	72	44	86	2.045	24	44	24	64
1.240	24	72	32	86	1.711	28	72	44	100	2.047	40	86	44	100
1.244	28	72	32	100	1.714	24	56	40	100	2.057	24	28	24	100
1.250	24	64	24	72	1.744	24	64	40	86	2.057	24	56	48	100
1.302	28	86	40	100	1.745	24	44	32	100	2.067	32	72	40	86
1.309	24	44	24	100	1.750	28	64	40	100	2.083	24	64	40	72
1.333	24	72	40	100	1.776	24	44	28	86	2.084	28	86	64	100
1.340	24	86	48	100	1.778	32	72	40	100	2.084	32	86	56	100
1.371	24	56	32	100	1.786	24	86	64	100	2.093	24	64	48	86
1.395	24	48	24	86	1.786	32	86	48	100	2.093	24	32	24	86
1.395	24	56	28	86	1.800	24	64	48	100	2.100	24	64	56	100
1.395	24	64	32	86	1.800	24	32	24	100	2.100	28	64	48	100
1.400	24	48	28	100	1.809	28	72	40	86	2.100	24	32	28	100
1.400	28	64	32	100	1.818	24	44	24	72	2.121	24	44	28	72
1.429	24	56	24	72	1.823	28	86	56	100	2.133	24	72	64	100
1.433	28	86	44	100	1.860	28	56	32	86	2.133	32	72	48	100
1.440	24	40	24	100	1.861	24	72	48	86	2.143	24	56	32	64
1.447	28	72	32	86	1.861	24	48	32	86	2.143	24	48	24	56
1.458	24	64	28	72	1.867	28	48	32	100	2.171	24	72	56	86
1.467	24	72	44	100	1.867	24	72	56	100	2.171	28	48	32	86
1.488	32	86	40	100	1.867	28	72	48	100	2.171	28	72	48	86
1.500	24	64	40	100	1.875	24	48	24	64	2.178	28	72	56	100
1.522	24	44	24	86	1.875	24	56	28	64	2.182	24	44	40	100

Table of Leads, 2.188″ to 3.080″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
2.188	24	48	28	64	2.500	24	48	28	56	2.800	24	24	28	100
2.193	24	56	44	86	2.500	28	56	32	64	2.800	32	64	56	100
2.200	24	48	44	100	2.500	24	64	48	72	2.800	24	48	56	100
2.200	28	56	44	100	2.500	24	48	32	64	2.812	24	32	24	64
2.200	32	64	44	100	2.500	24	32	24	72	2.828	28	44	32	72
2.222	24	48	32	72	2.514	32	56	44	100	2.843	40	72	44	86
2.222	28	56	32	72	2.532	28	72	56	86	2.845	32	72	64	100
2.233	40	86	48	100	2.537	24	44	40	86	2.849	28	64	56	86
2.233	24	40	32	86	2.546	28	44	40	100	2.857	24	48	32	56
2.238	28	64	44	86	2.558	32	64	44	86	2.857	24	56	48	72
2.240	28	40	32	100	2.558	28	56	44	86	2.857	24	28	24	72
2.250	24	40	24	64	2.558	24	48	44	86	2.865	44	86	56	100
2.274	32	72	44	86	2.567	28	48	44	100	2.867	86	72	24	100
2.286	32	56	40	100	2.571	24	40	24	56	2.880	24	40	48	100
2.292	24	64	44	72	2.593	28	48	32	72	2.894	28	72	64	86
2.326	32	64	40	86	2.605	28	40	32	86	2.894	32	72	56	86
2.326	24	48	40	86	2.605	40	86	56	100	2.909	32	44	40	100
2.326	28	56	40	86	2.618	24	44	48	100	2.917	24	64	56	72
2.333	28	48	40	100	2.619	24	56	44	72	2.917	28	64	48	72
2.333	24	40	28	72	2.625	24	40	28	64	2.917	28	48	32	64
2.338	24	44	24	56	2.640	24	40	44	100	2.917	24	32	28	72
2.344	28	86	72	100	2.658	32	56	40	86	2.924	32	56	44	86
2.368	28	44	32	86	2.667	40	72	48	100	2.933	44	72	48	100
2.381	32	86	64	100	2.667	32	48	40	100	2.934	32	48	44	100
2.381	24	56	40	72	2.667	24	40	32	72	2.946	24	56	44	64
2.386	24	44	28	64	2.674	28	64	44	72	2.950	28	44	40	86
2.392	24	56	48	86	2.678	24	56	40	64	2.977	40	86	64	100
2.392	24	28	24	86	2.679	32	86	72	100	2.984	28	48	44	86
2.400	28	56	48	100	2.700	24	64	72	100	3.000	24	40	28	56
2.400	32	64	48	100	2.713	28	48	40	86	3.000	24	40	32	64
2.424	24	44	32	72	2.727	24	44	32	64	3.000	24	32	40	100
2.431	28	64	40	72	2.727	24	44	28	56	3.000	40	64	48	100
2.442	24	32	28	86	2.727	24	44	24	48	3.000	24	40	24	48
2.442	28	64	48	86	2.743	24	56	64	100	3.030	24	44	40	72
2.442	24	64	56	86	2.743	32	56	48	100	3.044	24	44	48	86
2.445	40	72	44	100	2.743	24	28	32	100	3.055	28	44	48	100
2.450	28	64	56	100	2.750	40	64	44	100	3.055	24	44	56	100
2.456	44	86	48	100	2.778	32	64	40	72	3.056	32	64	44	72
2.481	32	72	48	86	2.778	24	48	40	72	3.056	28	56	44	72
2.481	24	72	64	86	2.778	40	56	28	72	3.056	24	48	44	72
2.489	32	72	56	100	2.791	28	56	48	86	3.070	24	40	44	86
2.489	28	72	64	100	2.791	32	64	48	86	3.080	28	40	44	100

Table of Leads, 3.086″ to 3.896″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
3.086	24	56	72	100	3.349	48	40	24	86	3.637	48	44	24	72
3.101	40	72	48	86	3.360	56	40	24	100	3.646	40	48	28	64
3.101	32	48	40	86	3.360	48	40	28	100	3.655	40	56	44	86
3.111	28	40	32	72	3.383	32	44	40	86	3.657	64	56	32	100
3.111	40	72	56	100	3.403	28	64	56	72	3.663	72	64	28	86
3.117	24	44	32	56	3.409	24	44	40	64	3.667	40	48	44	100
3.125	28	56	40	64	3.411	32	48	44	86	3.667	44	40	24	72
3.125	24	48	40	64	3.411	44	72	48	86	3.673	24	28	24	56
3.126	48	86	56	100	3.422	44	72	56	100	3.684	44	86	72	100
3.140	24	86	72	64	3.428	24	40	32	56	3.686	86	56	24	100
3.143	40	56	44	100	3.429	40	28	24	100	3.704	32	48	40	72
3.150	28	100	72	64	3.429	40	56	48	100	3.721	24	24	32	86
3.175	32	56	40	72	3.438	24	48	44	64	3.721	64	48	24	86
3.182	28	44	32	64	3.438	28	56	44	64	3.721	64	56	28	86
3.182	24	44	28	48	3.488	40	64	48	86	3.733	48	72	56	100
3.189	32	56	48	86	3.488	40	32	24	86	3.733	56	48	32	100
3.189	24	28	32	86	3.491	64	44	24	100	3.733	64	48	28	100
3.190	24	86	64	56	3.491	48	44	32	100	3.733	28	24	32	100
3.198	40	64	44	86	3.492	32	56	44	72	3.750	24	32	24	48
3.200	28	100	64	56	3.500	40	64	56	100	3.750	24	32	28	56
3.200	24	100	64	48	3.500	28	32	40	100	3.750	28	56	48	64
3.200	24	24	32	100	3.500	28	40	32	64	3.763	86	64	28	100
3.214	24	56	48	64	3.500	24	40	28	48	3.771	44	56	48	100
3.214	24	32	24	56	3.520	32	40	44	100	3.772	24	28	44	100
3.214	24	28	24	64	3.535	28	44	40	72	3.799	56	48	28	86
3.225	24	100	86	64	3.552	56	44	24	86	3.809	24	28	32	72
3.241	28	48	40	72	3.552	48	44	28	86	3.810	64	56	24	72
3.256	24	24	28	86	3.556	40	72	64	100	3.810	32	56	48	72
3.256	24	86	56	48	3.564	56	44	28	100	3.818	24	40	28	44
3.256	32	64	56	86	3.565	28	48	44	72	3.819	40	64	44	72
3.267	28	48	56	100	3.571	24	48	40	56	3.822	86	72	32	100
3.273	24	40	24	44	3.571	32	56	40	64	3.837	24	32	44	86
3.275	44	86	64	100	3.572	48	86	64	100	3.837	44	64	48	86
3.281	24	32	28	64	3.582	44	40	28	86	3.840	64	40	24	100
3.300	44	64	48	100	3.588	72	56	24	86	3.840	32	40	48	100
3.300	44	32	24	100	3.600	72	48	24	100	3.850	44	64	56	100
3.308	32	72	64	86	3.600	72	64	32	100	3.850	28	32	44	100
3.333	32	64	48	72	3.600	72	56	28	100	3.876	24	72	100	86
3.333	28	56	48	72	3.600	48	32	24	100	3.889	32	64	56	72
3.333	28	48	32	56	3.618	56	72	40	86	3.889	56	48	24	72
3.345	28	100	86	72	3.636	24	44	32	48	3.889	24	24	28	72
3.349	40	86	72	100	3.636	28	44	32	56	3.896	24	44	40	56

Table of Leads, 3.907″ to 4.778″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
3.907	28	40	48	86	4.200	48	64	56	100	4.480	56	40	32	100
3.907	56	40	24	86	4.200	56	32	24	100	4.480	64	40	28	100
3.911	44	72	64	100	4.200	28	32	48	100	4.500	72	64	40	100
3.920	28	40	56	100	4.200	72	48	28	100	4.500	48	40	24	64
3.927	72	44	24	100	4.242	28	44	32	48	4.500	24	32	24	40
3.929	32	56	44	64	4.242	28	44	48	72	4.522	100	72	28	86
3.929	24	48	44	56						4.537	56	48	28	72
3.977	28	44	40	64	4.242	24	44	56	72	4.545	24	44	40	48
3.979	44	72	56	86	4.253	64	56	32	86	4.546	28	44	40	56
3.987	24	28	40	86	4.264	40	48	44	86	4.546	32	44	40	64
3.987	40	56	48	86	4.267	64	48	32	100	4.548	44	72	64	86
4.000	24	40	32	48	4.267	48	72	64	100	4.558	56	40	28	86
4.000	28	40	32	56	4.278	28	40	44	72	4.567	72	44	24	86
4.000	24	24	40	100	4.286	24	28	24	48	4.572	40	56	64	100
4.000	24	40	48	72	4.286	24	28	32	64	4.572	32	28	40	100
4.011	28	48	44	64	4.286	32	56	48	64	4.582	72	44	28	100
4.019	72	86	48	100	4.300	86	56	28	100	4.583	44	64	48	72
4.040	32	44	40	72	4.300	86	64	32	100	4.583	44	32	24	72
4.059	32	44	48	86	4.300	86	48	24	100	4.584	32	48	44	64
4.060	64	44	24	86	4.320	72	40	24	100	4.584	28	48	44	56
4.070	28	32	40	86	4.341	48	72	56	86	4.651	40	24	24	86
4.070	40	64	56	86	4.341	56	48	32	86	4.655	64	44	32	100
4.073	64	44	28	100	4.342	64	48	28	86	4.667	28	40	32	48
4.073	56	44	32	100	4.342	28	24	32	86	4.667	40	24	28	100
4.074	32	48	44	72	4.361	100	64	24	86	4.667	56	40	24	72
4.091	24	44	48	64	4.363	24	40	32	44	4.667	48	40	28	72
4.091	24	32	24	44	4.364	40	44	48	100	4.667	40	48	56	100
4.093	32	40	44	86	4.365	40	56	44	72	4.675	24	28	24	44
4.114	48	28	24	100	4.375	24	24	28	64	4.675	48	44	24	56
4.114	72	56	32	100	4.375	24	32	28	48	4.687	40	32	24	64
4.125	24	40	44	64	4.375	56	48	24	64	4.688	56	86	72	100
4.135	40	72	64	86	4.386	24	28	44	86	4.691	86	44	24	100
4.144	56	44	28	86	4.386	44	56	48	86	4.714	44	40	24	56
4.167	28	48	40	56	4.400	24	24	44	100	4.736	64	44	28	86
4.167	40	64	48	72	4.444	64	56	28	72	4.736	56	44	32	86
4.167	32	48	40	64	4.444	24	24	32	72	4.762	40	28	24	72
4.167	24	32	40	72	4.444	64	48	24	72	4.762	40	48	32	56
4.167	56	86	64	100	4.465	64	40	24	86	4.762	40	56	48	72
4.186	72	64	32	86	4.466	48	40	32	86	4.773	24	32	28	44
4.186	48	32	24	86	4.477	44	32	28	86	4.773	56	44	24	64
4.186	72	48	24	86	4.477	56	64	44	86	4.773	48	44	28	64
4.186	72	56	28	86	4.479	86	64	24	72	4.778	86	72	40	100

Table of Leads, 4.784″ to 5.733″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
4.784	72	56	32	86	5.116	44	24	24	86	5.358	64	86	72	100
4.785	48	28	24	86	5.119	86	56	24	72	5.375	86	64	40	100
4.800	48	24	24	100	5.120	64	40	32	100	5.400	72	32	24	100
4.800	56	28	24	100	5.133	56	48	44	100	5.400	72	64	48	100
4.800	64	32	24	100	5.134	44	24	28	100	5.413	64	44	32	86
4.800	72	48	32	100	5.142	72	56	40	100	5.426	40	24	28	86
4.813	44	40	28	64	5.143	24	28	24	40	5.427	40	48	56	86
4.821	72	56	24	64	5.143	24	40	48	56	5.444	56	40	28	72
4.849	32	44	48	72	5.156	44	32	24	64	5.455	48	44	28	56
4.849	64	44	24	72	5.160	86	40	24	100	5.455	32	44	48	64
4.861	40	32	28	72	5.168	100	72	32	86	5.469	40	32	28	64
4.861	56	64	40	72	5.185	28	24	32	72	5.473	86	44	28	100
4.884	48	64	56	86	5.186	64	48	28	72	5.486	64	28	24	100
4.884	72	48	28	86	5.186	56	48	32	72	5.486	48	28	32	100
4.884	48	32	28	86	5.195	32	44	40	56	5.486	48	56	64	100
4.884	56	32	24	86	5.209	100	64	24	72	5.500	44	40	24	48
4.889	32	40	44	72	5.210	64	40	28	86	5.500	44	40	32	64
4.898	24	28	32	56	5.210	56	40	32	86	5.500	40	32	44	100
4.900	56	32	28	100	5.226	86	64	28	72	5.500	44	40	28	56
4.911	40	56	44	64	5.233	72	64	40	86	5.556	40	24	24	72
4.914	86	56	32	100	5.236	72	44	32	100	5.568	56	44	28	64
4.950	56	44	28	72	5.238	44	28	24	72	5.581	64	32	24	86
4.950	72	64	44	100	5.238	32	48	44	56	5.581	56	28	24	86
4.961	64	48	32	86	5.238	44	56	48	72	5.581	72	48	32	86
4.961	64	72	48	86	5.250	24	32	28	40	5.582	48	24	24	86
4.978	56	72	64	100	5.250	56	40	24	64	5.600	56	24	24	100
4.984	100	56	24	86	5.250	48	40	28	64	5.600	48	24	28	100
5.000	24	24	28	56	5.256	86	72	44	100	5.600	64	32	28	100
5.000	24	24	32	64	5.280	48	40	44	100	5.625	48	32	24	64
5.000	48	32	24	72	5.303	28	44	40	48	5.625	72	48	24	64
5.017	86	48	28	100	5.316	40	28	32	86	5.625	72	56	28	64
5.023	72	40	24	86	5.316	40	56	64	86	5.657	56	44	32	72
5.029	44	28	32	100	5.328	72	44	28	86	5.657	72	56	44	100
5.029	64	56	44	100	5.333	40	24	32	100	5.657	64	44	28	72
5.040	72	40	28	100	5.333	64	40	24	72	5.698	56	32	28	86
5.074	40	44	48	86	5.333	32	40	48	72	5.714	48	28	24	72
5.080	64	56	32	72	5.333	40	48	64	100	5.714	24	28	32	48
5.088	100	64	28	86	5.347	44	64	56	72	5.714	24	24	32	56
5.091	56	44	40	100	5.348	44	32	28	72	5.714	64	48	24	56
5.091	28	40	32	44	5.357	40	28	24	64	5.730	40	48	44	64
5.093	40	48	44	72	5.357	40	32	24	56	5.733	86	48	32	100
5.105	28	48	56	64	5.357	40	56	48	64	5.733	86	72	48	100

Table of Leads, 5.756 to 6.757″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
5.756	72	64	44	86	6.089	72	44	32	86	6.417	44	40	28	48
5.759	86	56	24	64	6.109	56	44	48	100	6.429	24	28	24	32
5.760	72	40	32	100	6.112	24	24	44	72	6.429	48	28	24	64
5.788	64	72	56	86	6.122	40	28	24	56	6.429	48	32	24	56
5.814	100	64	32	86	6.125	56	40	28	64	6.429	72	48	24	56
5.814	100	56	28	86	6.137	72	44	24	64	6.429	72	56	32	64
5.814	100	48	24	86	6.140	48	40	44	86	6.450	86	64	48	100
5.818	64	44	40	100	6.143	86	56	40	100	6.450	86	32	24	100
5.833	28	24	24	48	6.160	56	40	44	100	6.460	100	72	40	86
5.833	32	24	28	64						6.465	64	44	32	72
5.833	56	32	24	72	6.171	72	56	48	100	6.482	56	48	40	72
5.833	48	32	28	72	6.172	72	28	24	100	6.482	40	24	28	72
5.833	56	48	32	64	6.202	40	24	32	86	6.512	56	24	24	86
5.833	56	64	48	72	6.202	64	48	40	86	6.512	64	32	28	86
5.847	64	56	44	86	6.222	64	40	28	72	6.512	48	24	28	86
5.848	44	28	32	86	6.222	56	40	32	72	6.515	86	44	24	72
5.861	72	40	28	86	6.234	32	28	24	44	6.534	56	24	28	100
5.867	44	24	32	100	6.234	64	44	24	56	6.545	48	40	24	44
5.867	64	48	44	100	6.234	48	44	32	56	6.545	72	44	40	100
5.893	44	32	24	56	6.250	24	24	40	64	6.548	44	48	40	56
5.893	44	28	24	64	6.250	40	32	24	48	6.563	56	32	24	64
5.893	48	56	44	64	6.250	40	32	28	56	6.563	72	48	28	64
5.912	86	64	44	100	6.255	86	44	32	100	6.563	48	32	28	64
5.920	56	44	40	86	6.279	72	64	48	86	6.578	72	56	44	86
5.926	64	48	32	72	6.279	72	32	24	86	6.600	48	32	44	100
5.952	100	56	24	72	6.286	44	40	32	56	6.600	72	48	44	100
5.954	64	40	32	86	6.286	44	28	40	100	6.645	100	56	32	86
5.969	44	24	28	86	6.300	72	32	28	100	6.667	64	48	28	56
5.969	56	48	44	86	6.300	72	64	56	100	6.667	32	24	28	56
5.972	86	48	24	72	6.343	100	44	24	86	6.667	32	24	24	48
5.972	86	56	28	72	6.350	40	28	32	72	6.667	48	24	24	72
5.972	86	64	32	72	6.350	64	56	40	72	6.667	56	28	24	72
5.980	72	56	40	86	6.364	56	44	24	48	6.667	64	32	24	72
6.000	48	40	28	56	6.364	56	44	32	64	6.689	86	72	56	100
6.000	48	40	32	64	6.364	24	24	28	44	6.697	100	56	24	64
6.000	48	32	40	100	6.379	64	28	24	86	6.698	72	40	32	86
6.000	72	48	40	100	6.379	48	28	32	86	6.719	86	48	24	64
6.016	44	32	28	64	6.379	64	56	48	86	6.719	86	56	28	64
6.020	86	40	28	100	6.396	44	32	40	86	6.720	56	40	48	100
6.061	40	44	32	48	6.400	64	24	24	100	6.735	44	28	24	56
6.061	48	44	40	72	6.400	48	24	32	100	6.750	72	40	24	64
6.077	100	64	28	72	6.400	56	28	32	100	6.757	86	56	44	100

Table of Leads, 6.766″ to 7.883″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
6.766	64	44	40	86	7.159	72	44	28	64	7.525	86	32	28	100
6.784	100	48	28	86	7.163	56	40	44	86	7.525	86	64	56	100
6.806	56	32	28	72	7.167	86	40	24	72	7.543	48	28	44	100
6.818	40	32	24	44	7.167	86	48	40	100	7.576	100	44	24	72
6.818	48	44	40	64	7.176	72	28	24	86	7.597	56	24	28	86
6.822	44	24	32	86	7.176	72	56	48	86	7.601	86	44	28	72
6.822	64	48	44	86	7.200	72	24	24	100	7.611	72	44	40	86
6.825	86	56	32	72	7.268	100	64	40	86	7.619	64	48	32	56
6.857	32	28	24	40	7.272	64	44	28	56	7.619	64	56	48	72
6.857	64	40	24	56	7.273	32	24	24	44	7.620	64	28	24	72
6.857	48	40	32	56	7.273	64	44	24	48	7.620	48	28	32	72
6.857	48	28	40	100	7.292	56	48	40	64	7.636	56	40	24	44
6.875	44	24	24	64	7.292	40	32	28	48	7.636	48	40	28	44
6.875	44	32	24	48	7.292	40	24	28	64	7.639	44	32	40	72
6.875	44	32	28	56	7.310	44	28	40	86	7.644	86	72	64	100
6.880	86	40	32	100	7.314	64	28	32	100	7.657	56	32	28	64
6.944	100	48	24	72	7.326	72	32	28	86	7.674	72	48	44	86
6.944	100	64	32	72	7.326	72	64	56	86	7.675	48	32	44	86
6.945	100	56	28	72	7.330	86	44	24	64	7.679	86	48	24	56
6.968	86	48	28	72	7.333	44	24	40	100	7.679	86	56	32	64
6.977	48	32	40	86	7.333	48	40	44	72	7.680	64	40	48	100
6.977	100	40	24	86	7.334	44	40	32	48	7.700	56	32	44	100
6.977	72	48	40	86	7.347	48	28	24	56	7.714	72	40	24	56
6.982	64	44	48	100	7.371	86	56	48	100	7.752	100	48	32	86
6.984	44	28	32	72	7.372	86	28	24	100	7.752	100	72	48	86
6.984	64	56	44	72	7.400	100	44	28	86	7.778	32	24	28	48
7.000	28	24	24	40	7.408	40	24	32	72	7.778	56	24	24	72
7.000	56	40	24	48	7.408	64	48	40	72	7.778	48	24	28	72
7.000	56	40	32	64	7.424	56	44	28	48	7.778	64	32	28	72
7.000	56	32	40	100	7.442	64	24	24	86	7.792	40	28	24	44
7.013	72	44	24	56	7.442	48	24	32	86	7.792	48	44	40	56
7.040	64	40	44	100	7.442	56	28	32	86	7.813	100	48	24	64
7.071	56	44	40	72	7.465	86	64	40	72	7.813	100	56	28	64
					7.467	64	24	28	100	7.815	56	40	48	86
7.104	56	44	48	86						7.818	86	44	40	100
7.106	100	72	44	86	7.467	56	24	32	100	7.838	86	48	28	64
7.111	64	40	32	72	7.467	64	48	56	100	7.855	72	44	48	100
7.130	44	24	28	72	7.500	48	24	24	64	7.857	44	24	24	56
7.130	56	48	44	72	7.500	56	28	24	64	7.857	44	28	24	48
7.143	40	28	32	64	7.500	48	32	28	56	7.872	44	28	32	64
7.143	40	28	24	48	7.500	72	48	28	56	7.875	72	40	28	64
7.143	40	24	24	56	7.500	72	48	32	64	7.883	86	48	44	100

Table of Leads, 7.920″ to 9.302″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
7.920	72	40	44	100	8.333	48	32	40	72	8.772	48	28	44	86
7.936	100	56	32	72	8.333	100	40	24	72	8.800	48	24	44	100
7.954	40	32	28	44	8.334	40	24	28	56	8.800	64	32	44	100
7.955	56	44	40	64	8.361	86	40	28	72	8.800	56	28	44	100
7.963	86	48	32	72	8.372	72	24	24	86	8.838	100	44	28	72
7.974	48	28	40	86	8.377	86	44	24	56	8.839	72	56	44	64
7.994	100	64	44	86	8.400	72	24	28	100	8.889	64	24	24	72
8.000	64	32	40	100	8.400	56	32	48	100	8.889	56	28	32	72
8.000	32	24	24	40	8.400	72	48	56	100	8.889	48	24	32	72
8.000	64	40	24	48	8.437	72	32	24	64	8.909	56	40	28	44
8.000	64	40	28	56	8.457	100	44	32	86	8.929	100	48	24	56
8.000	56	28	40	100	8.484	32	24	28	44	8.929	100	56	32	64
8.000	48	24	40	100	8.485	64	44	28	48	8.930	64	40	48	86
8.021	44	32	28	48	8.485	56	44	32	48	8.953	56	32	44	86
8.021	44	24	28	64	8.485	56	44	48	72	8.959	86	48	28	56
8.021	56	48	44	64	8.506	64	28	32	86	8.959	86	32	24	72
8.035	72	56	40	64	8.523	100	44	24	64	8.959	86	64	48	72
8.063	86	40	24	64	8.527	44	24	40	86	8.959	86	48	28	56
8.081	64	44	40	72	8.532	86	56	40	72	8.960	64	40	56	100
8.102	100	48	28	72	8.534	64	24	32	100	8.980	44	28	32	56
8.119	64	44	48	86	8.552	86	44	28	64	9.000	48	32	24	40
8.140	56	32	40	86	8.556	56	40	44	72	9.000	72	40	24	48
8.140	100	40	28	86	8.572	64	32	24	56	9.000	72	40	28	56
8.145	64	44	56	100	8.572	48	28	32	64	9.000	72	40	32	64
8.148	64	48	44	72	8.572	48	24	24	56	9.000	72	32	40	100
8.149	44	24	32	72	8.572	72	48	32	56	9.044	100	72	56	86
8.163	40	28	32	56	8.594	44	32	40	64	9.074	56	24	28	72
8.167	56	40	28	48	8.600	86	24	24	100	9.091	40	24	24	44
8.182	48	32	24	44	8.640	72	40	48	100	9.115	100	48	28	64
8.182	72	44	24	48	8.681	100	64	40	72	9.134	72	44	48	86
8.182	72	44	28	56	8.682	64	24	28	86	9.137	100	56	44	86
8.182	72	44	32	64	8.682	56	24	32	86	9.143	64	40	32	56
8.186	64	40	44	86	8.682	64	48	56	86	9.143	64	28	40	100
8.212	86	64	44	72	8.687	86	44	32	72	9.164	72	44	56	100
8.229	72	28	32	100	8.721	100	32	24	86	9.167	44	24	24	48
8.229	72	56	64	100	8.721	100	64	48	86	9.167	44	24	28	56
8.250	44	32	24	40	8.727	48	40	32	44	9.167	44	24	32	64
8.250	48	40	44	64	8.730	44	28	40	72	9.167	48	32	44	72
8.306	100	56	40	86	8.750	28	24	24	32	9.210	72	40	44	86
8.312	64	44	32	56	8.750	56	32	24	48	9.214	86	40	24	56
8.333	40	24	24	48	8.750	56	24	24	64	9.260	100	48	32	72
8.333	40	24	32	64	8.750	48	24	28	64	9.302	48	24	40	86

Table of Leads, 9.303″ to 10.477″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
9.303	56	28	40	86	9.675	86	64	72	100	10.101	100	44	32	72
9.303	64	32	40	86	9.690	100	48	40	86	10.159	64	28	32	72
9.303	100	40	32	86	9.697	64	48	32	44	10.175	100	32	28	86
9.333	64	40	28	48	9.697	64	44	48	72	10.175	100	64	56	86
9.333	56	40	32	48	9.723	40	24	28	48	10.182	64	40	28	44
9.333	56	24	40	100	9.723	56	32	40	72	10.182	56	40	32	44
9.333	56	40	48	72	9.723	100	40	28	72	10.186	44	24	40	72
9.334	32	24	28	40	9.741	100	44	24	56	10.209	56	24	28	64
9.351	48	28	24	44	9.768	72	48	56	86	10.209	56	32	28	48
9.351	72	44	32	56	9.768	56	32	48	86	10.228	72	44	40	64
9.375	48	32	40	64	9.768	72	24	28	86	10.233	48	24	44	86
9.375	100	40	24	64	9.773	86	44	24	48	10.233	56	28	44	86
9.375	72	48	40	64	9.773	86	44	28	56	10.233	64	32	44	86
9.382	86	44	48	100	9.773	86	44	32	64	10.238	86	28	24	72
9.385	86	56	44	72	9.778	64	40	44	72	10.238	86	48	32	56
9.406	86	40	28	64	9.796	64	28	24	56	10.238	86	56	48	72
9.428	44	28	24	40	9.796	48	28	32	56	10.267	56	24	44	100
9.429	48	40	44	56	9.818	72	40	24	44	10.286	48	28	24	40
9.460	86	40	44	100	9.822	44	32	40	56	10.286	72	40	32	56
9.472	64	44	56	86	9.822	44	28	40	64	10.286	72	28	40	100
9.524	40	28	32	48	9.828	86	28	32	100	10.312	48	32	44	64
9.524	40	24	32	56	9.828	86	56	64	100	10.313	72	48	44	64
9.524	48	28	40	72	9.844	72	32	28	64	10.320	86	40	48	100
9.524	64	48	40	56	9.900	72	32	44	100	10.336	100	72	64	86
9.545	72	44	28	48	9.921	100	56	40	72	10.370	64	24	28	72
9.546	56	32	24	44	9.923	64	24	32	86	10.370	56	24	32	72
9.546	48	32	28	44	9.943	100	44	28	64	10.371	64	48	56	72
9.547	56	44	48	64	9.954	86	48	40	72	10.390	40	28	32	44
9.549	100	64	44	72	9.967	100	56	48	86	10.390	64	44	40	56
9.556	86	40	32	72	9.968	100	28	24	86	10.417	100	32	24	72
9.569	72	28	32	86	10.000	56	28	24	48	10.417	100	48	28	56
9.569	72	56	64	86	10.000	48	24	28	56	10.417	100	48	32	64
9.598	86	56	40	64	10.000	64	32	24	48	10.417	100	64	48	72
9.600	72	24	32	100	10.000	64	32	28	56	10.419	64	40	56	86
9.600	56	28	48	100	10.000	56	28	32	64	10.451	86	32	28	72
9.600	64	32	48	100	10.000	48	24	32	64	10.451	86	64	56	72
9.600	72	48	64	100	10.033	86	24	28	100	10.467	72	32	40	86
9.625	44	32	28	40	10.033	86	48	56	100	10.473	72	44	64	100
9.625	56	40	44	64	10.046	72	40	48	86	10.476	44	24	32	56
9.643	72	32	24	56	10.057	64	28	44	100	10.476	44	28	32	48
9.643	72	28	24	64	10.078	86	32	24	64	10.477	48	28	44	72
9.643	72	56	48	64	10.080	72	40	56	100	10.477	64	48	44	56

Table of Leads, 10.500″ to 12.272″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
10.500	56	32	24	40	11.111	48	24	40	72	11.667	64	32	28	48
10.500	48	32	28	40	11.111	56	28	40	72	11.667	56	32	48	72
10.500	72	40	28	48	11.111	64	32	40	72	11.667	56	24	32	64
10.500	56	40	48	64	11.111	100	40	32	72	11.688	72	44	40	56
10.558	86	56	44	64	11.137	56	32	28	44	11.695	64	28	44	86
10.571	100	44	40	86	11.160	100	56	40	64	11.719	100	32	24	64
10.606	56	44	40	48	11.163	72	24	32	86	11.721	72	40	56	86
10.606	40	24	28	44	11.163	56	28	48	86	11.728	86	40	24	44
10.631	64	28	40	86	11.163	72	48	64	86	11.733	64	24	44	100
10.655	72	44	56	86	11.163	64	32	48	86	11.757	86	32	28	64
10.659	100	48	44	86	11.169	86	44	32	56	11.785	72	48	44	56
10.667	64	40	48	72	11.198	86	48	40	64	11.786	44	28	24	32
10.667	64	24	40	100	11.200	56	24	48	100	11.786	48	32	44	56
10.667	64	40	32	48	11.200	64	32	56	100	11.786	48	28	44	64
10.694	44	24	28	48	11.225	44	28	40	56	11.825	86	32	44	100
10.694	56	32	44	72	11.250	72	24	24	64	11.852	64	24	32	72
10.713	40	28	24	32	11.250	72	32	24	48	11.905	100	28	24	72
10.714	48	32	40	56	11.250	72	32	28	56	11.905	100	48	32	56
10.714	48	28	40	64	11.313	64	44	56	72	11.905	100	56	48	72
10.714	100	40	24	56	11.314	72	28	44	100	11.938	56	24	44	86
10.714	72	48	40	56	11.363	100	44	24	48	11.944	86	24	24	72
10.750	86	40	24	48	11.363	100	44	28	56	11.960	72	28	40	86
10.750	86	40	28	56	11.363	100	44	32	64	12.000	48	24	24	40
10.750	86	40	32	64	11.401	86	44	28	48	12.000	56	28	24	40
10.750	86	32	40	100	11.429	32	24	24	28	12.000	64	32	24	40
10.800	72	32	48	100	11.429	64	28	24	48	12.000	72	40	32	48
10.853	56	24	40	86	11.429	64	24	24	56	12.000	72	24	40	100
10.859	86	44	40	72	11.429	48	24	32	56	12.031	56	32	44	64
10.909	72	44	32	48	11.454	72	40	28	44	12.040	86	40	56	100
10.909	56	28	24	44	11.459	44	24	40	64	12.121	40	24	32	44
10.909	48	24	24	44	11.459	44	32	40	48	12.121	64	44	40	48
10.909	64	32	24	44	11.467	86	24	32	100	12.153	100	32	28	72
10.913	100	56	44	72	11.467	86	48	64	100	12.153	100	64	56	72
10.937	56	32	40	64	11.512	72	32	44	86	12.178	72	44	64	86
10.937	100	40	28	64	11.518	86	28	24	64	12.216	86	44	40	64
10.945	86	44	56	100	11.518	86	32	24	56	12.222	44	24	32	48
10.949	86	48	44	72	11.518	86	56	48	64	12.222	48	24	44	72
10.972	64	28	48	100	11.520	72	40	64	100	12.222	56	28	44	72
11.000	44	24	24	40	11.574	100	48	40	72	12.222	64	32	44	72
11.021	72	28	24	56	11.629	100	24	24	86	12.245	48	28	40	56
11.057	86	56	72	100	11.638	64	40	32	44	12.250	56	32	28	40
11.111	40	24	32	48	11.667	56	24	24	48	12.272	72	32	24	44

Table of Leads, 12.272″ to 14.322″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
12.272	72	44	48	64	12.900	86	32	48	100	13.566	100	48	56	86
12.277	100	56	44	64	12.900	86	48	72	100	13.611	56	24	28	48
12.286	86	28	40	100	12.963	56	24	40	72	13.636	48	32	40	44
12.286	86	40	32	56	12.987	100	44	32	56	13.636	100	40	24	44
12.318	86	48	44	64	13.020	100	48	40	64	13.636	72	44	40	48
12.343	72	28	48	100	13.024	56	24	48	86	13.643	64	24	44	86
12.375	72	40	44	64	13.024	64	32	56	86	13.650	86	28	32	72
12.403	64	24	40	86	13.030	86	44	32	48	13.650	86	56	64	72
12.444	64	40	56	72	13.030	86	44	48	72	13.672	100	32	28	64
12.468	64	28	24	44	13.062	64	28	32	56	13.682	86	40	28	44
12.468	48	28	32	44	13.082	100	64	72	86	13.713	64	40	48	56
12.468	64	44	48	56	13.090	72	40	32	44	13.715	64	28	24	40
12.500	40	24	24	32	13.096	44	28	40	48	13.715	48	28	32	40
12.500	48	24	40	64	13.096	44	24	40	56	13.750	44	24	24	32
12.500	56	28	40	64	13.125	72	32	28	48	13.750	48	24	44	64
12.500	100	40	24	48	13.125	72	24	28	64	13.750	56	28	44	64
12.500	100	40	28	56	13.125	56	32	48	64	13.760	86	40	64	100
12.500	100	40	32	64	13.125	72	48	56	64	13.889	100	24	24	72
12.542	86	40	28	48	13.139	86	40	44	72	13.933	86	48	56	72
12.508	86	44	64	100	13.157	72	28	44	86	13.935	86	24	28	72
12.558	72	32	48	86	13.163	86	28	24	56	13.953	72	24	40	86
12.571	64	40	44	56	13.200	72	24	44	100	13.953	100	40	48	86
12.572	44	28	32	40	13.258	100	44	28	48	13.960	86	44	40	56
12.600	72	32	56	100	13.289	100	28	32	86	13.968	64	28	44	72
12.627	100	44	40	72	13.289	100	56	64	86	14.000	56	24	24	40
12.686	100	44	48	86	13.333	64	24	24	48	14.000	48	24	28	40
12.698	64	28	40	72	13.333	64	24	28	56	14.000	64	32	28	40
12.727	64	32	28	44	13.333	56	28	32	48	14.025	72	44	48	56
12.728	56	24	24	44	13.333	56	28	48	72	14.026	72	28	24	44
12.728	48	24	28	44	13.333	64	32	48	72	14.063	72	32	40	64
12.732	100	48	44	72	13.393	100	56	48	64	14.071	86	44	72	100
12.758	64	28	48	86	13.393	100	28	24	64	14.078	86	48	44	56
12.791	100	40	44	86	13.393	100	32	24	56	14.142	72	40	44	56
12.798	86	48	40	56	13.396	72	40	64	86	14 204	100	44	40	64
12.800	64	28	56	100	13.437	86	32	28	56	14.260	56	24	44	72
12.800	64	24	48	100	13.438	86	24	24	64	14.286	40	24	24	28
12.834	56	40	44	48	13.438	86	32	24	48	14.286	48	24	40	56
12.834	44	24	28	40	13.469	48	28	44	56	14.286	64	32	40	56
12.857	72	28	32	64	13.500	72	32	24	40	14.286	100	40	32	56
12.857	72	24	24	56	13.500	72	40	48	64	14.318	72	32	28	44
12.857	72	28	24	48	13.514	86	28	44	100	14.319	72	44	56	64
12.858	48	28	24	32	13.566	100	24	28	86	14.322	100	48	44	64

Table of Leads, 14.333″ to 16.914″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
14.333	86	40	32	48	15.238	64	28	48	72	15.989	100	32	44	86
14.333	86	24	40	100	15.239	64	28	32	48	16.000	64	24	24	40
14.333	86	40	48	72	15.239	64	24	32	56	16.000	48	24	32	40
14.352	72	28	48	86	15.272	56	40	48	44	16.000	56	28	32	40
14.400	72	24	48	100	15.278	44	24	40	48	16.042	56	24	44	64
14.400	72	28	56	100	15.279	100	40	44	72	16.042	56	32	44	48
14.400	72	32	64	100	15.306	100	28	24	56	16.043	44	24	28	32
14.536	100	32	40	86	15.349	72	24	44	86	16.071	72	32	40	56
14.545	64	24	24	44	15.357	86	28	24	48	16.071	72	28	40	64
14.545	48	24	32	44	15.357	86	24	24	56	16.125	86	32	24	40
14.545	56	28	32	44	15.357	86	28	32	64	16.125	86	40	48	64
14.583	56	32	40	48	15.429	72	40	48	56	16.204	100	24	28	72
14.583	56	24	40	64	15.429	72	28	24	40	16.204	100	48	56	72
14.583	100	40	28	48	15.469	72	32	44	64	16.233	100	44	40	56
14.584	40	24	28	32	15.480	86	40	72	100	16.280	100	40	56	86
14.651	72	32	56	86	15.504	100	48	64	86	16.288	86	44	40	48
14.659	86	44	48	64	15.504	100	24	32	86	16.296	64	24	44	72
14.659	86	32	24	44	15.556	64	32	56	72	16.327	64	28	40	56
14.667	64	40	44	48	15.556	64	24	28	48	16.333	56	24	28	40
14.668	44	24	32	40	15.556	56	24	32	48	16.364	72	24	24	44
14.694	72	28	32	56	15.556	32	24	28	24	16.370	100	48	44	56
14.743	86	28	48	100	15.556	56	24	48	72	16.423	86	32	44	72
14.780	86	40	44	64	15.584	48	28	40	44	16.456	72	28	64	100
14.800	100	44	56	86	15.625	100	24	24	64	16.500	72	40	44	48
14.815	64	24	40	72	15.625	100	32	24	48	16.500	48	32	44	40
14.849	56	24	28	44	15.625	100	32	28	56	16.612	100	28	40	86
14.880	100	48	40	56	15.636	86	40	32	44	16.623	64	28	32	44
14.884	64	28	56	86	15.677	86	32	28	48	16.667	56	28	40	48
14.884	64	24	48	86	15.677	86	24	28	64	16.667	64	32	40	48
14.931	86	32	40	72	15.677	86	48	56	64	16.667	100	40	32	48
14.933	64	24	56	100	15.714	44	24	24	28	16.667	100	40	48	72
14.950	100	56	72	86	15.714	48	24	44	56	16.722	86	40	56	72
15.000	48	24	24	32	15.714	64	32	44	56	16.744	72	24	48	86
15.000	56	28	24	32	15.750	72	32	28	40	16.744	72	28	56	86
15.000	72	24	24	48	15.750	72	40	56	64	16.744	72	32	64	86
15.000	72	24	28	56	15.767	86	24	44	100	16.752	86	44	48	56
15.000	72	24	32	64	15.873	100	56	64	72	16.753	86	28	24	44
15.000	56	28	48	64	15.874	100	28	32	72	16.797	86	32	40	64
15.050	86	32	56	100	15.909	100	40	28	44	16.800	72	24	56	100
15.150	100	44	32	48	15.909	56	32	40	44	16.875	72	32	48	64
15.151	100	44	48	72	15.925	86	48	64	72	16.892	86	40	44	56
15.202	86	44	56	72	15.926	86	24	32	72	16.914	100	44	64	86

Table of Leads, 16.969″ to 20.20″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
16.969	64	44	56	48	17.918	86	32	48	72	19.091	72	24	28	44
16.970	64	24	28	44	17.959	64	28	44	56	19.096	100	32	44	72
16.970	56	24	32	44	18.000	72	24	24	40	19.111	86	40	64	72
17.045	100	32	24	44	18.181	56	28	40	44	19.136	72	28	64	86
17.046	100	44	48	64	18.181	64	32	40	44	19.197	86	32	40	56
17.062	86	28	40	72	18.181	100	40	32	44	19.197	86	28	40	64
17.101	86	44	56	64	18.182	48	24	40	44	19.200	72	24	64	100
17.102	86	32	28	44	18.229	100	32	28	48	19.250	56	32	44	40
17.141	64	32	48	56	18.229	100	24	28	64	19.285	72	32	48	56
17.143	64	28	24	32	18.229	100	48	56	64	19.285	72	28	48	64
17.144	48	24	24	28	18.273	100	28	44	86	19.286	72	28	24	32
17.144	72	28	32	48	18.285	64	28	32	40	19.350	86	32	72	100
17.144	72	24	32	56	18.333	56	28	44	48	19.380	100	24	40	86
17.144	72	48	64	56	18.333	64	32	44	48	19.394	64	24	32	44
17.188	100	40	44	64	18.367	72	28	40	56	19.444	40	24	28	24
17.200	86	32	64	100	18.428	86	28	24	40	19.444	56	24	40	48
17.200	86	28	56	100	18.428	86	40	48	56	19.444	100	40	56	72
17.200	86	24	48	100	18.476	86	32	44	64	19 480	100	28	24	44
17.275	86	56	72	64	18.519	100	24	32	72	19.480	100	44	48	56
17.361	100	32	40	72	18.519	100	48	64	72	19.531	100	32	40	64
17.364	64	24	56	86	18.605	100	40	64	86	19.535	72	24	56	86
17.373	86	44	64	72	18.663	100	64	86	72	19.545	86	24	24	44
17.442	100	32	48	86	18.667	64	24	28	40	19.590	64	28	48	56
17.442	100	48	72	86	18.667	56	24	32	40	19.635	72	40	48	44
17.454	64	40	48	44	18.667	64	40	56	48	19.642	100	40	44	56
17.500	56	24	24	32	18.700	72	44	64	56	19.643	44	28	40	32
17.500	48	24	28	32	18.700	72	28	32	44	19.656	86	28	64	100
17.500	72	24	28	48	18.750	100	32	24	40	19.687	72	32	56	64
17.500	56	24	48	64	18.750	72	24	40	64	19.710	86	40	44	48
17.550	86	28	32	56	18.750	72	32	40	48	19.840	100	28	40	72
17.677	100	44	56	72	18.750	100	40	48	64	19.886	100	44	56	64
17.679	72	32	44	55	18.770	86	28	44	72	19.887	100	32	28	44
17.679	72	28	44	64	18.812	86	32	28	40	19.908	86	24	40	72
17.778	64	24	32	48	18.812	86	40	56	64	19.934	100	28	48	86
17.778	64	24	48	72	18.858	48	28	44	40	20.00	72	24	32	48
17.778	64	28	56	72	18.939	100	44	40	48	20.00	64	24	24	32
17.858	100	24	24	56	19.029	100	44	72	86	20.00	56	24	24	28
17.858	100	28	32	64	19.048	40	24	32	28	20.07	86	24	56	100
17.858	100	28	24	48	19.048	64	24	40	56	20.09	100	56	72	64
17.917	86	24	32	64	19.048	64	28	40	48	20.16	86	48	72	64
17.917	86	24	28	56	19.090	56	32	48	44	20.16	86	32	48	64
17.918	86	24	24	48	19.090	72	44	56	48	20.20	100	44	64	72

Table of Leads, 20.20″ to 24.55″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
					21.43	100	28	24	40	23.04	86	32	48	56
20.20	72	28	44	56	21.48	100	32	44	64	23.04	86	28	48	64
20.35	100	32	56	86	21.50	86	24	24	40	23.04	86	28	24	32
20.36	64	40	56	44	21.82	72	44	64	48	23.14	100	24	40	72
20.41	100	28	32	56	21.82	100	28	44	72	23.26	100	32	64	86
20.42	56	24	28	32	21.82	64	32	48	44	23.26	100	28	56	86
20.45	72	32	40	44	21.82	56	28	48	44	23.26	100	24	48	86
20.48	86	48	64	56	21.82	72	24	32	44	23.33	64	32	56	48
20.48	86	28	48	72	21.88	100	40	56	64	23.33	48	24	28	24
20.48	86	28	32	48	21.88	100	32	28	40	23.33	64	24	28	32
20.48	86	24	32	56	21.90	86	24	44	72	23.38	72	28	40	44
20.57	72	40	64	56	21.94	86	28	40	56	23.44	100	48	72	64
20.57	72	28	32	40	21.99	86	44	72	64	23.44	100	32	48	64
20.63	72	32	44	48	22.00	64	32	44	40	23.45	86	40	48	44
20.63	72	24	44	64	22.00	48	24	44	40	23.52	86	32	56	64
20.74	64	24	56	72	22.00	56	28	44	40	23.57	72	28	44	48
20.78	64	28	40	44	22.04	72	28	48	56	23.57	72	24	44	56
20.83	100	32	48	72	22.11	86	28	72	100	23.57	48	28	44	32
20.83	100	24	32	64	22.22	100	40	64	72					
20.83	100	24	28	56	22.22	40	24	32	24	23.81	100	48	64	56
20.83	100	24	24	48	22.22	64	24	40	48	23.81	100	28	48	72
20.90	86	32	56	72	22.32	72	24	64	86	23.81	100	28	32	48
20.90	86	24	28	48	22.32	100	32	40	56	23.81	100	24	32	56
20.93	100	40	72	86	22.32	100	28	40	64	23.89	86	32	64	72
20.95	64	28	44	48	22.34	86	44	64	56	23.89	86	28	56	72
20.95	64	24	44	56	22.34	86	28	32	44	23.89	86	24	48	72
20.95	44	24	32	28	22.40	86	32	40	48	23.89	86	24	32	48
21.00	56	32	48	40	22.40	86	24	40	64	24.00	64	40	72	48
21.00	72	40	56	48	22.50	72	24	48	64	24.00	72	24	32	40
21.00	72	24	28	40	22.50	72	24	24	32	24.00	56	28	48	40
21.12	86	32	44	56	22.50	72	28	56	64	24.00	64	32	48	40
21.12	86	28	44	64	22.73	100	24	24	44	24.00	100	56	86	64
21.21	56	24	40	44	22.80	86	48	56	44	24.13	86	28	44	56
21.32	100	24	44	86	22.80	86	24	28	44	24.19	86	40	72	64
21.33	100	56	86	72	22.86	64	24	24	28	24.24	64	24	40	44
21.33	64	24	32	40	22.86	48	24	32	28	24.31	100	32	56	72
21.39	44	24	28	24	22.86	64	24	48	56	24.31	100	24	28	48
21.39	56	24	44	48	22.91	72	44	56	40	24.43	86	32	40	44
21.43	100	40	48	56	22.92	100	40	44	48	24.44	44	24	32	24
21.43	72	28	40	48	22.92	44	24	40	32	24.44	64	24	44	48
21.43	72	24	40	56	22.93	86	24	64	100	24.54	72	32	48	44
21.43	48	28	40	32	23.04	86	56	72	48	24.55	100	32	44	56

Table of Leads, 24.55″ to 31.11″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
24.55	100	28	44	64	26.52	100	24	28	44	28.57	100	56	64	40
24.57	86	40	64	56	26.58	100	28	64	86	28.57	48	28	40	24
24.57	86	28	32	40	26.67	64	28	56	48	28.57	64	32	40	28
24.64	86	24	44	64	26.67	56	24	32	28	28.57	100	28	32	40
24.64	86	32	44	48	26.67	48	24	32	24	28.64	72	44	56	32
24.75	72	32	44	40	26.79	100	48	72	56	28.65	100	32	44	48
24.88	100	72	86	48	26.79	100	32	48	56	28.65	100	24	44	64
24.93	64	28	48	44	26.79	100	28	48	64	28 67	86	40	64	48
25.00	72	24	40	48	26.79	100	28	24	32	28 67	86	24	32	40
25.00	48	24	40	32	26.88	86	28	56	64	29.09	64	24	48	44
25.00	56	28	40	32	26.88	86	24	48	64	29.09	64	28	56	44
25.00	100	24	24	40	26.88	86	24	24	32	29.17	100	40	56	48
25.08	86	24	28	40	27.00	72	32	48	40	29.17	56	24	40	32
25.09	86	40	56	48	27.13	100	24	56	86	29.17	100	24	28	40
25.13	86	44	72	56	27.15	100	44	86	72	29.22	100	56	72	44
25.14	64	28	44	40	27.22	56	24	28	24	29.32	86	48	72	44
25.45	64	44	56	32	27.27	100	40	48	44	29.32	86	32	48	44
25.45	56	24	48	44	27.27	72	24	40	44	29.34	64	24	44	40
25.46	100	24	44	72	27.30	86	28	64	72	29.39	72	28	64	56
25.51	100	28	40	56	27.34	100	32	56	64	29.56	86	32	44	40
25.57	100	64	72	44	27.36	86	40	56	44	29.76	100	28	40	48
25.60	86	28	40	48	27.43	64	28	48	40	29.76	100	24	40	56
25.60	86	24	40	56	27.50	56	32	44	28	29.86	100	40	86	72
25.67	56	24	44	40	27.50	48	24	44	32	29.86	86	24	40	48
25.71	72	24	48	56	27.50	72	24	44	48	29.90	100	28	72	86
25.71	72	56	64	32	27.64	86	40	72	56	30.00	56	28	48	32
25.72	72	24	24	28	27.78	100	32	64	72	30.00	72	32	64	48
25.80	86	24	72	100	27.78	100	28	56	72	30.00	72	28	56	48
25.97	100	44	64	56	27.78	100	24	48	72	30.23	86	32	72	64
25.97	100	28	32	44	27.78	100	24	32	48	30.30	100	48	64	44
26.04	100	32	40	48	27.87	86	24	56	72	30.30	100	24	32	44
26.04	100	24	40	64	27.92	86	28	40	44	30.48	64	24	32	28
26.06	86	44	64	48	28.00	100	64	86	48	30.54	100	44	86	64
26.06	86	24	32	44	28.00	64	32	56	40	30.56	44	24	40	24
26.16	100	32	72	86	28.00	56	24	48	40	30.61	100	28	48	56
26.18	72	40	64	44	28.05	72	28	48	44	30.71	86	24	48	56
26.19	44	24	40	28	28.06	100	28	44	56	30.71	86	32	64	56
26.25	72	32	56	48	28.13	100	40	72	64	30.72	86	24	24	28
26.25	72	24	56	64	28.15	86	28	44	48	30.86	72	28	48	40
26.25	72	24	28	32	28.15	86	24	44	56	31.01	100	24	64	86
26.33	86	28	48	56	28.29	72	28	44	40	31.11	64	24	56	48
26.52	100	44	56	48	28.41	100	32	40	44	31.11	56	24	32	24

Table of Leads, 31.11″ to 41.99″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
31.11	64	24	28	24	34.09	100	44	48	32	37.50	72	24	40	32
31.25	100	28	56	64	34.20	86	44	56	32	37.63	86	32	56	40
31.25	100	24	48	64	34.29	72	48	64	28	37.88	100	24	40	44
31.25	100	24	24	32	34.29	72	24	64	56	38.10	64	24	40	28
31.27	86	40	64	44	34.29	64	32	48	28	38.18	72	24	56	44
31.35	86	32	56	48	34.29	72	24	32	28	38.20	100	24	44	48
31.35	86	24	56	64	34.38	100	32	44	40	38.39	100	40	86	56
31.36	86	24	28	32	34.55	86	32	72	56	38.39	86	28	40	32
31.43	64	28	44	32	34.55	86	28	72	64	38.57	72	28	48	32
31.43	48	24	44	28	34.72	100	24	40	48	38.89	56	24	40	24
31.50	72	32	56	40	34.88	100	24	72	86	38.96	100	28	48	44
31.75	100	72	64	28	34.90	100	56	86	44	39.09	86	32	64	44
31.82	100	44	56	40	35.00	72	24	56	48	39.09	86	28	56	44
31.85	86	24	64	72	35.00	56	24	48	32	39.09	86	24	48	44
31.99	100	56	86	48	35.00	72	24	28	24	39.29	100	28	44	40
32.00	64	28	56	40	35.10	86	28	64	56	39.42	86	24	44	40
32.00	64	24	48	40	35.16	100	32	72	64					
32.09	56	24	44	32	35.18	86	44	72	40	39.49	86	28	72	56
32.14	100	56	72	40	35.36	72	32	44	28	39.77	100	32	56	44
32.14	72	28	40	32	35.56	64	24	32	24	40.00	72	24	64	48
32.25	86	48	72	40	35.71	100	32	64	56	40.00	64	28	56	32
32.25	86	40	48	32	35.71	100	24	48	56	40.00	64	24	48	32
32.41	100	24	56	72	35.72	100	24	24	28	40.00	56	24	48	28
32.47	100	28	40	44	35.83	86	32	64	48	40.00	72	24	32	24
32.58	86	24	40	44	35.83	86	28	56	48	40.18	100	32	72	56
32.73	72	32	64	44	36.00	72	32	64	40	40.18	100	28	72	64
32.73	72	28	56	44	36.00	72	28	56	40	40.31	86	32	72	48
32.73	72	24	48	44	36.00	72	24	48	40	40.31	86	24	72	64
32.74	100	28	44	48	36.36	100	44	64	40	40.72	100	44	86	48
32.74	100	24	44	56	36.46	100	48	56	32	40.82	100	28	64	56
32.85	86	24	44	48	36.46	100	24	56	64	40.91	100	40	72	44
33.00	72	24	44	40	36.46	100	24	28	32	40.95	86	28	64	48
33.33	100	24	32	40	36.67	48	24	44	24	40.95	86	24	64	56
33.33	100	48	64	40	36.67	64	24	44	32	40.96	86	24	32	28
33.33	64	24	40	32	36.67	56	24	44	28	41.14	72	28	64	40
33.33	56	24	40	28	36.86	86	28	48	40	41.25	72	24	44	32
33.33	48	24	40	24	37.04	100	24	64	72	41.67	100	32	64	48
33.51	86	28	48	44	37.33	100	32	86	72	41.67	100	28	56	48
33.59	100	64	86	40	37.33	64	24	56	40	41.81	86	24	56	48
33.79	86	28	44	40	37.40	72	28	64	44	41.81	86	24	28	24
33.94	64	24	56	44	37.50	100	48	72	40	41.91	64	24	44	28
34.09	100	48	72	44	37.50	100	32	48	40	41.99	100	32	86	64

Table of Leads. 42.00″ to 74.65″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
42.00	72	24	56	40	48.00	72	24	64	40	56.31	86	24	44	28
					48.38	86	32	72	40	57.14	100	28	64	40
42.23	86	28	44	32	48.61	100	24	56	48	57.30	100	24	44	32
42.66	100	28	86	72	48.61	100	24	28	24	57.33	86	24	64	40
42.78	56	24	44	24	48.86	100	40	86	44	58.33	100	24	56	40
42.86	100	28	48	40	48.89	64	24	44	24	58.44	100	28	72	44
42.86	72	24	40	28	49.11	100	28	44	32	58.64	86	24	72	44
43.00	86	32	64	40	49.14	86	28	64	40	59.53	100	24	40	28
43.00	86	28	56	40	49.27	86	24	44	32	59.72	86	24	40	24
43.00	86	24	48	40	49.77	100	24	86	72	60.00	72	24	64	32
43.64	72	24	64	44	50.00	100	28	56	40	60.00	72	24	56	28
43.75	100	32	56	40	50.00	100	24	48	40	60.00	72	24	48	24
43.98	86	32	72	44	50.00	72	24	40	24	60.61	100	24	64	44
44.44	64	24	40	24	50.00	100	32	64	40	61.08	100	32	86	44
44.64	100	28	40	32	50.17	86	24	56	40	61.43	86	28	64	32
44.68	86	28	64	44	50.26	86	28	72	44	61.43	86	24	48	28
44.79	100	40	86	48	51.14	100	32	72	44	62.22	64	24	56	24
44.79	86	24	40	32	51.19	86	24	40	28	62.50	100	24	72	48
45.00	72	28	56	32	51.43	72	28	64	32	62.50	100	28	56	32
45.00	72	24	48	32	51.43	72	24	48	28	62.50	100	24	48	32
45.45	100	32	64	44	51.95	100	28	64	44	62.71	86	24	56	32
45.45	100	24	48	44	52.08	100	24	40	32	63.99	100	28	86	48
45.46	100	28	56	44	52.12	86	24	64	44	63.99	100	24	86	56
45.61	86	24	56	44	52.50	72	24	56	32	64.29	100	28	72	40
45.72	64	24	48	28	53.03	100	24	56	44	64.50	86	24	72	40
45.84	100	24	44	40	53.33	64	24	56	28	65.48	100	24	44	28
45.92	100	28	72	56	53.33	64	24	48	24	65.70	86	24	44	24
46.07	86	28	72	48	53.57	100	28	72	48	66.67	100	24	64	40
46.07	86	24	72	56	53.57	100	24	72	56	67.19	100	32	86	40
46.07	86	28	48	32	53.57	86	24	72	48	68.18	100	24	72	44
46.67	64	24	56	32	53.57	100	28	48	32	68.57	72	24	64	28
46.67	56	24	48	24						69.11	86	28	72	32
46.88	100	32	72	48	53.75	86	24	48	32	69.44	100	24	40	24
46.88	100	24	72	64	53.75	86	28	56	32	69.80	100	28	86	44
47.15	72	24	44	28	54.85	100	28	86	56	70.00	72	24	56	24
47.62	100	28	64	48	55.00	72	24	44	24	71.43	100	28	64	32
47.62	100	24	64	56	55.28	86	28	72	40	71.43	100	24	48	28
47.62	100	24	32	28	55.56	100	24	32	24	71.67	86	24	64	32
47.78	86	24	64	48	55.56	100	24	64	48	71.67	86	24	56	28
47.78	86	24	32	24	55.99	100	24	86	64	71.67	86	24	48	24
47.99	100	32	86	56	55.99	100	32	86	48	72.92	100	24	56	32
47.99	100	28	86	64	56.25	100	32	72	40	74.65	100	24	86	48

Table of Leads, 75.00″ to 149.31″.

	DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER		DRIVEN	DRIVER	DRIVEN	DRIVER
LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW	LEAD IN INCHES	GEAR ON WORM	1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SCREW
75.00	100	24	72	40										
76.39	100	24	44	24										
76.79	100	28	86	40										
80.00	72	24	64	24										
80.36	100	28	72	32										
80.63	86	24	72	32										
81.44	100	24	86	44										
81.90	86	24	64	28										
83.33	100	24	64	32										
83.33	100	24	56	28										
83.33	100	24	48	24										
83.61	86	24	56	24										
89.59	100	24	86	40										
92.14	86	24	72	28										
93.75	100	24	72	32										
95.24	100	24	64	28										
95.56	86	24	64	24										
95.98	100	28	86	32										
97.22	100	24	56	24										
107.14	100	24	72	28										
107.50	86	24	72	24										
111.11	100	24	64	24										
111.98	100	24	86	32										
125.00	100	24	72	24										
127.98	100	24	86	28										
149.31	100	24	86	24										

Index Table.

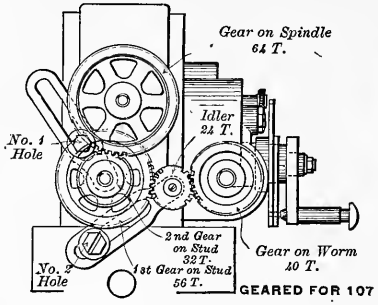
The following table contains all the data necessary to index for any number of divisions from 2 to 399 when using the spiral head of a Universal Milling Machine made by Brown & Sharpe Mfg. Co., equipped for differential indexing.

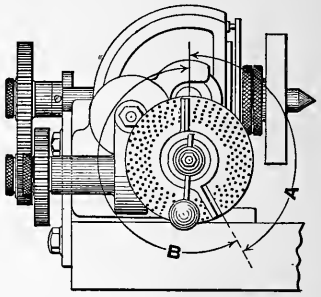
EXAMPLE: Required to index for 107 divisions.

Referring to table, 107 divisions calls for index plate with a 20 hole circle, 8 holes to be taken at each indexing. Gears must be used as follows: gear on worm 40 teeth, 1st gear on stud 56 teeth, 2d gear on stud 32 teeth and gear on spindle 64 teeth. To turn the index plate in the right direction, one idler is required. The sectors are to be set to the 78 graduation as called for and will then be correct for indexing 8 holes in a 20 hole circle.

INDEX TABLE 2 to 50

PLAIN & DIFFERENTIAL INDEXING





NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION
2	Any	20	
3	39	13 13/39	65
	33	13 11/33	65
	18	13 6/18	65
4	Any	10	
5	Any	8	
6	39	6 26/39	132
	33	6 22/33	132
	18	6 12/18	132
7	49	5 35/49	140
	21	5 15/21	142
8	Any	5	
9	27	4 12/27	88
	18	4 8/18	87
10	Any	4	
11	33	3 21/33	126
12	39	3 13/39	65
	33	3 11/33	65
	18	3 6/18	65

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION
13	39	3 3/39	14
14	49	2 42/49	169
	21	2 18/21	170
15	39	2 26/39	132
	33	2 22/33	132
	18	2 12/18	132
16	20	2 10/20	98
17	17	2 6/17	69
18	27	2 6/27	43
	18	2 4/18	43
19	19	2 2/19	19
20	Any	2	
21	21	1 19/21	18*
22	33	1 27/33	161
23	23	1 17/23	147
24	39	1 26/39	132
	33	1 22/33	132
	18	1 12/18	132
25	20	1 12/20	118

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION
26	39	1 21/39	106
27	27	1 13/27	95
28	49	1 21/49	83
	21	1 9/21	85
29	29	1 11/29	75
30	39	1 13/39	65
	33	1 11/33	65
	18	1 6/18	65
31	31	1 9/31	56
32	20	1 5/20	48
33	33	1 7/33	41
34	17	1 3/17	33
35	49	1 7/49	26
	21	1 3/21	28
36	27	1 3/27	21
	18	1 2/18	21
37	37	1 3/37	15
38	19	1 1/19	9
39	39	1 1/39	3

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION
40	Any	1	
41	41	40/41	3*
42	21	20/21	9*
43	43	40/43	12*
44	33	30/33	17*
45	27	24/27	21*
	18	16/18	21*
46	23	20/23	172
47	47	40/47	168
48	18	15/18	165
49	49	40/49	161
50	20	16/20	158

GRADUATIONS IN TABLE INDICATE SETTING FOR ARMS OF SECTOR WHEN INDEX CRANK MOVES THROUGH ARC "A," EXCEPT CASES MARKED * WHEN THE INDEX CRANK MOVES THROUGH ARC "B."

INDEX TABLE 51 to 92.

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
51	17	14/17	33*	24			48	24	44
52	39	30/39	152						
53	49	35/49	140	56	40	24	72		
	21	15/21	142	56	40	24	72		
54	27	20/27	147						
55	33	24/33	144						
56	49	35/49	140						
	21	15/21	142						
57	49	35/49	140	56			40	24	44
	21	15/21	142	56			40	24	44
58	29	20/29	136						
59	39	26/39	132	48			32	44	
	33	22/33	132	48			32	44	
	18	12/18	132	48			32	44	
60	39	26/39	132						
	33	22/33	132						
	18	12/18	132						
61	39	26/39	132	48			32	24	44
	33	22/33	132	48			32	24	44
	18	12/18	132	48			32	24	44
62	31	20/31	127						
63	39	26/39	132	24			48	24	44
	33	22/33	132	24			48	24	44
	18	12/18	132	24			48	24	44
64	16	10/16	123						
65	39	24/39	121						
66	33	20/33	120						
67	49	28/49	112	28			48	44	
	21	12/21	113	28			48	44	
68	17	10/17	116						
69	20	12/20	118	40			56	24	44
70	49	28/49	112						
	21	12/21	113						
71	27	15/27	110	72			40	24	
	18	10/18	109	72			40	24	
72	27	15/27	110						
	18	10/18	109						
73	49	28/49	112	28			48	24	44
	21	12/21	113	28			48	24	44
74	37	20/37	107						
75	15	8/15	105						
76	19	10/19	103						
77	20	10/20	98	32			48	44	
78	39	20/39	101						
79	20	10/20	98	48			24	44	
80	20	10/20	98						
81	20	10/20	98	48			24	24	44
82	41	20/41	96						
83	26	10/20	98	32			48	24	44
84	21	10/21	94						
85	17	8/17	92						
86	43	20/43	91						
87	15	7/15	92	40			24	24	44
88	33	15/33	89						
89	27	12/27	88	72			32	44	
	18	8/18	87	72			32	44	
90	27	12/27	88						
	18	8/18	87						
91	39	18/39	91	24			48	24	44
92	23	10/23	86						

INDEX TABLE 93 to 125.

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
93	27	12/27	88	24			32	24	44
	18	8/18	87	24			32	24	44
94	47	20/47	83						
95	19	8/19	82						
96	49	21/49	83	28			32	24	44
	21	9/21	85	28			32	24	44
97	20	8/20	78	40			48	44	
98	49	20/49	79						
99	20	8/20	78	56	28	40	32		
100	20	8/20	78						
101	20	8/20	78	72	24	40	48		24
102	20	8/20	78	40			32	24	44
103	20	8/20	78	40			48	24	44
104	39	15/39	75						
105	21	8/21	75						
106	43	16/43	73	86	24	24	48		
107	20	8/20	78	40	56	32	64		24
108	27	10/27	73						
109	16	6/16	73	32			28	24	44
110	33	12/33	71						
111	39	13/39	65	24			72	32	
	33	11/33	65	24			72	32	
	18	6/18	65	24			72	32	
112	39	13/39	65	24			64	44	
	33	11/33	65	24			64	44	
	18	6/18	65	24			64	44	
113	39	13/39	65	24			56	44	
	33	11/33	65	24			56	44	
	18	6/18	65	24			56	44	

NUMBER OF DIVISIONS	INDEX CIRCLE	No OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
114	39	13/39	65	24			48	44	
	33	11/33	65	24			48	44	
	18	6/18	65	24			48	44	
115	23	8/23	68						
116	29	10/29	68						
117	39	13/39	65	24			24	56	
	33	11/33	65	24			24	56	
	18	6/18	65	24			24	56	
118	39	13/39	65	48			32	44	
	33	11/33	65	48			32	44	
	18	6/18	65	48			32	44	
119	39	13/39	65	72			24	44	
	33	11/33	65	72			24	44	
	18	6/18	65	72			24	44	
120	39	13/39	65						
	33	11/33	65						
	18	6/18	65						
121	39	13/39	65	72			24	24	44
	33	11/33	65	72			24	24	44
	18	6/18	65	72			24	24	44
122	39	13/39	65	48			32	24	44
	33	11/33	65	48			32	24	44
	18	6/18	65	48			32	24	44
123	39	13/39	65	24			24	24	44
	33	11/33	65	24			24	24	44
	18	6/18	65	24			24	24	44
124	31	10/31	63						
125	39	13/39	65	24			40	24	44
	33	11/33	65	24			40	24	44
	18	6/18	65	24			40	24	44

INDEX TABLE 126 to 168.

NUMBER OF DIVISIONS	INDEX CIRCLE	NO. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
126	39	13/39	65	24			48	24	44
	33	11/33	65	24			48	24	44
	18	6/18	65	24			48	24	44
127	39	13/39	65	24			56	24	44
	33	11/33	65	24			56	24	44
	18	6/18	65	24			56	24	44
128	16	5/16	61						
129	39	13/39	65	24			72	24	44
	33	11/33	65	24			72	24	44
	18	6/18	65	24			72	24	44
130	39	12/39	60						
131	20	6/20	58	40			28	44	
132	33	10/33	59						
133	49	14/49	55	24			48	44	
	21	6/21	56	24			48	44	
134	49	14/49	55	28			48	44	
	21	6/21	56	28			48	44	
135	27	8/27	58						
136	17	5/17	57						
137	49	14/49	55	28			24	56	
	21	6/21	56	28			24	56	
138	49	14/49	55	56			32	44	
	21	6/21	56	56			32	44	
139	49	14/49	55	56	32	48	24		
	21	6/21	56	56	32	48	24		
140	49	14/49	55						
	21	6/21	56						
141	18	5/18	54	48			40	44	
142	49	14/49	55	56			32	24	44
	21	6/21	56	56			32	24	44
143	49	14/49	55	28			24	24	44
	21	6/21	56	28			24	24	44
144	18	5/18	54						
145	29	8/29	54						
146	49	14/49	55	28			48	24	44
	21	6/21	56	28			48	24	44
147	49	14/49	55	24			48	24	44
	21	6/21	56	24			48	24	44
148	37	10/37	53						
149	49	14/49	55	28			72	24	44
	21	6/21	56	28			72	24	44
150	15	4/15	52						
151	20	5/20	48	32			72	44	
152	19	5/19	51						
153	20	5/20	48	32			56	44	
154	20	5/20	48	32			48	44	
155	31	8/31	50						
156	39	10/39	50						
157	20	5/20	48	32			24	56	
158	20	5/20	48	48			24	44	
159	20	5/20	48	64	32	56	28		
160	20	5/20	48						
161	20	5/20	48	64	32	56	28		24
162	20	5/20	48	48			24	24	44
163	20	5/20	48	32			24	24	44
164	41	10/41	47						
165	33	8/33	47						
166	20	5/20	48	32			48	24	44
167	20	5/20	48	32			56	24	44
168	21	5/21	47						

INDEX TABLE 169 to 214.

NUMBER OF DIVISIONS	INDEX CIRCLE	NO. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
169	20	5/20	48	32			72	24	44
170	17	4/17	45						
171	21	5/21	47	56			40	24	44
172	43	10/43	44						
173	27	6/27	43	72	56	32	64		
	18	4/18	43	72	56	32	64		
174	27	6/27	43	24			32	56	
	18	4/18	43	24			32	56	
175	27	6/27	43	72	40	32	64		
	18	4/18	43	72	40	32	64		
176	27	6/27	43	72	24	24	64		
	18	4/18	43	72	24	24	64		
177	27	6/27	43	72			48	24	
	18	4/18	43	72			48	24	
178	27	6/27	43	72			32	44	
	18	4/18	43	72			32	44	
179	27	6/27	43	72	24	48	32		
	18	4/18	43	72	24	48	32		
180	27	6/27	43						
	18	4/18	43						
181	27	6/27	43	72	24	48	32		24
	18	4/18	43	72	24	48	32		24
182	27	6/27	43	72			32	24	44
	18	4/18	43	72			32	24	44
183	27	6/27	43	48			32	24	44
	18	4/18	43	48			32	24	44
184	23	5/23	42						
185	37	8/37	42						
186	27	6/27	43	48			64	24	44
	18	4/18	43	48			64	24	44

NUMBER OF DIVISIONS	INDEX CIRCLE	NO. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
187	27	6/27	43	72	48	24	56		24
	18	4/18	43	72	48	24	56		24
188	47	10/47	40						
189	27	6/27	43	32			64	24	44
	18	4/18	43	32			64	24	44
190	19	4/19	40						
191	20	4/20	38	40			72	24	
192	20	4/20	38	40			64	44	
193	20	4/20	38	40			56	44	
194	20	4/20	38	40			48	44	
195	39	8/39	39						
196	49	10/49	38						
197	20	4/20	38	40			24	56	
198	20	4/20	38	56	28	40	32		
199	20	4/20	38	100	40	64	32		
200	20	4/20	38						
201	20	4/20	38	72	24	40	24		24
202	20	4/20	38	72	24	40	48		24
203	20	4/20	38	40			24	24	44
204	20	4/20	38	40			32	24	44
205	41	8/41	37						
206	20	4/20	38	40			48	24	44
207	20	4/20	38	40			56	24	44
208	20	4/20	38	40			64	24	44
209	20	4/20	38	40			72	24	44
210	21	4/21	37						
211	16	3/16	36	64			28	44	
212	43	8/43	35	86	24	24	48		
213	27	5/27	36	72			40	44	
214	20	4/20	38	40	56	32	64		24

INDEX TABLE 215 to 270.

NUMBER OF DIVISIONS	INDEX CIRCLE	NO. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
215	43	8/43	35						
216	27	5/27	36						
217	21	4/21	37	48			64	24	44
218	16	3/16	36	64			56	24	44
219	21	4/21	37	28			48	24	44
220	33	6/33	35						
221	17	3/17	33	24			24	56	
222	18	3/18	32	24			72	44	
223	43	8/43	35	86	48	24	64		24
224	18	3/18	32	24			64	44	
225	27	5/27	36	24			40	24	44
226	18	3/18	32	24			56	44	
227	49	8/49	30	56	64	28	72		
228	18	3/18	32	24			48	44	
229	18	3/18	32	24			44	48	
230	23	4/23	34						
231	18	3/18	32	32			48	44	
232	29	5/29	33						
233	18	3/18	32	48			56	44	
234	18	3/18	32	24			24	56	
235	47	8/47	32						
236	18	3/18	32	48			32	44	
237	18	3/18	32	48			24	44	
238	18	3/18	32	72			24	44	
239	18	3/18	32	72	24	64	32		
240	18	3/18	32						
241	18	3/18	32	72	24	64	32		24
242	18	3/18	32	72			24	24	44
243	18	3/18	32	64			32	24	44
244	18	3/18	32	48			32	24	44
245	49	8/49	30						
246	18	3/18	32	24			24	24	44
247	18	3/18	32	48			56	24	44
248	31	5/31	31						
249	18	3/18	32	32			48	24	44
250	18	3/18	32	24			40	24	44
251	18	3/18	32	48	44	32	64		24
252	18	3/18	32	24			48	24	44
253	33	5/33	29	24			40	56	
254	18	3/18	32	24			56	24	44
255	18	3/18	32	48	40	24	72		24
256	18	3/18	32	24			64	24	44
257	49	8/49	30	56	48	28	64		24
258	43	7/43	31	32			64	24	44
259	49	7/49	26	24			72	44	
	21	3/21	28	24			72	44	
260	39	6/39	29						
261	29	4/29	26	48	64	24	72		
262	20	3/20	28	40			28	44	
263	49	8/49	30	56	64	28	72		24
264	33	5/33	29						
265	49	7/49	26	56	40	24	72		
	21	3/21	28	56	40	24	72		
266	49	7/49	26	32			64	44	
	21	3/21	28	32			64	44	
267	27	4/27	28	72			32	44	
268	49	7/49	26	28			48	44	
	21	3/21	28	28			48	44	
269	20	3/20	28	64	32	40	28		24
270	27	4/27	28						

INDEX TABLE 271 to 310

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No. 1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
271	49	7/49	26	56	24	24	72		
	21	3/21	28	56	24	24	72		
272	49	7/49	26	56			64	24	
	21	3/21	28	56			64	24	
273	49	7/49	26	24			24	56	
	21	3/21	28	24			24	56	
274	49	7/49	26	56			48	44	
	21	3/21	28	56			48	44	
275	49	7/49	26	56			40	44	
	21	3/21	28	56			40	44	
276	49	7/49	26	56			32	44	
	21	3/21	28	56			32	44	
277	49	7/49	26	56			24	44	
	21	3/21	28	56			24	44	
278	49	7/49	26	56	32	48	24		
	21	3/21	28	56	32	48	24		
279	27	4/27	28	24			32	24	44
280	49	7/49	26						
	21	3/21	28						
281	49	7/49	26	72	24	56	24		24
	21	3/21	28	72	24	56	24		24
282	43	6/43	26	86	24	24	56		
283	49	7/49	26	56			24	24	44
	21	3/21	28	56			24	24	44
284	49	7/49	26	56			32	24	44
	21	3/21	28	56			32	24	44
285	49	7/49	26	56			40	24	44
	21	3/21	28	56			40	24	44
286	49	7/49	26	56			48	24	44
	21	3/21	28	56			48	24	44
287	49	7/49	26	24			24	24	44
	21	3/21	28	24			24	24	44
288	49	7/49	26	28			32	24	44
	21	3/21	28	28			32	24	44
289	49	7/49	26	56	24	24	72		24
	21	3/21	28	56	24	24	72		24
290	29	4/29	26						
291	15	2/15	25	40			48	44	
292	49	7/49	26	28			48	24	44
	21	3/21	28	28			48	24	44
293	15	2/15	25	48	32	40	56		
294	49	7/49	26	24			48	24	44
	21	3/21	28	24			48	24	44
295	15	2/15	25	48			32	44	
296	37	5/37	26						
297	33	4/33	23	28	48	24	56		
298	49	7/49	26	28			72	24	44
	21	3/21	28	28			72	24	44
299	23	3/23	25	24			24	56	
300	15	2/15	25						
301	43	6/43	26	24			48	24	44
302	16	2/16	24	32			72	24	
303	15	2/15	25	72	24	40	48		24
304	16	2/16	24	24			48	44	
305	15	2/15	25	48			32	24	44
306	15	2/15	25	40			32	24	44
307	15	2/15	25	72	48	40	56		24
308	16	2/16	24	32			48	44	
309	15	2/15	25	40			48	24	44
310	31	4/31	24						

INDEX TABLE 311 to 355

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No.1 HOLE			IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD	GEAR ON SPINDLE	No. 1 HOLE	No 2 HOLE
311	16	2/16	24	64	24	24	72		
312	39	5/39	24						
313	16	2/16	24	32			28	56	
314	16	2/16	24	32			24	56	
315	16	2/16	24	64			40	24	
316	16	2/16	24	64			32	44	
317	16	2/16	24	64			24	44	
318	16	2/16	24	56	28	48	24		
319	29	4/29	26	48	64	24	72		24
320	16	2/16	24						
321	16	2/16	24	72	24	64	24		24
322	23	3/23	25	32			64	24	44
323	16	2/16	24	64			24	24	44
324	16	2/16	24	64			32	24	44
325	16	2/16	24	64			40	24	44
326	16	2/16	24	32			24	24	44
327	16	2/16	24	32			28	24	44
328	41	5/41	23						
329	16	2/16	24	64	24	24	72		24
330	33	4/33	23						
331	16	2/16	24	64	44	24	48		24
332	16	2/16	24	32			48	24	44
333	27	3/27	21	24			72	44	
	18	2/18	21	24			72	44	
334	16	2/16	24	32			56	24	44
335	33	4/33	23	72	48	44	40		24
336	16	2/16	24	32			64	24	44
337	43	5/43	21	86	40	32	56		
338	16	2/16	24	32			72	24	44
339	27	3/27	21	24			56	44	
	18	2/18	21	24			56	44	
340	17	2/17	22						
341	43	5/43	21	86	24	32	40		
342	27	3/27	21	32			64	44	
	18	2/18	21	32			64	44	
343	15	2/15	25	40	64	24	86		24
344	43	5/43	21						
345	27	3/27	21	24			40	56	
	18	2/18	21	24			40	56	
346	27	3/27	21	72	56	32	64		
	18	2/18	21	72	56	32	64		
347	43	5/43	21	86	24	32	40		24
348	27	3/27	21	24			32	56	
	18	2/18	21	24			32	56	
349	27	3/27	21	72	44	24	48		
	18	2/18	21	72	44	24	48		
350	27	3/27	21	72	40	32	64		
	18	2/18	21	72	40	32	64		
351	27	3/27	21	24			24	56	
	18	2/18	21	24			24	56	
352	27	3/27	21	72	24	24	64		
	18	2/18	21	72	24	24	64		
353	27	3/27	21	72	24	24	56		
	18	2/18	21	72	24	24	56		
354	27	3/27	21	72			48	24	
	18	2/18	21	72			48	24	
355	27	3/27	21	72			40	24	
	18	2/18	21	72			40	24	

INDEX TABLE 356 to 399.

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No. 1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
356	27	3/27	21	72			32	24	
	18	2/18	21	72			32	24	
357	27	3/27	21	72			24	44	
	18	2/18	21	72			24	44	
358	27	3/27	21	72	32	48	24		
	18	2/18	21	72	32	48	24		
359	43	5/43	21	86	48	32	100		24
360	27	3/27	21						
	18	2/18	21						
361	19	2/19	19	32			64	44	
362	27	3/27	21	72	28	56	32		24
	18	2/18	21	72	28	56	32		24
363	27	3/27	21	72			24	24	44
	18	2/18	21	72			24	24	44
364	27	3/27	21	72			32	24	44
	18	2/18	21	72			32	24	44
365	20	2/20	18	32	48	24	56		
366	27	3/27	21	48			32	24	44
	18	2/18	21	48			32	24	44
367	27	3/27	21	72	24	24	56		24
	18	2/18	21	72	24	24	56		24
368	27	3/27	21	72	24	24	64		24
	18	2/18	21	72	24	24	64		24
369	41	4/41	18	32	56	28	64		
370	37	4/37	20						
371	21	2/21	18	32	56	24	64		
372	27	3/27	21	48			64	24	44
	18	2/18	21	48			64	24	44
373	20	2/20	18	40	48	32	72		

NUMBER OF DIVISIONS	INDEX CIRCLE	No. OF TURNS OF INDEX	GRADUATION	GEAR ON WORM	No. 1 HOLE		GEAR ON SPINDLE	IDLERS	
					1ST GEAR ON STUD	2ND GEAR ON STUD		No. 1 HOLE	No. 2 HOLE
374	27	3/27	21	72	56	32	64		24
	18	2/18	21	72	56	32	64		24
375	27	3/27	21	24			40	24	44
	18	2/18	21	24			40	24	44
376	47	5/47	19						
377	29	3/29	19	24			24	56	
378	27	3/27	21	32			64	24	44
	18	2/18	21	32			64	24	44
379	20	2/20	18	48	56	40	72		
380	19	2/19	19						
381	27	3/27	21	24			56	24	44
	18	2/18	21	24			56	24	44
382	20	2/20	18	40			72	24	
383	20	2/20	18	40			68*		
384	20	2/20	18	40			64	44	
385	20	2/20	18	32			48	44	
386	20	2/20	18	40			56	44	
387	43	4/43	15	32	56	28	64		
388	20	2/20	18	40			48	44	
389	20	2/20	18	40			44	56	
390	39	4/39	17						
391	20	2/20	18	48	24	40	72		
392	49	5/49	16						
393	20	2/20	18	40			28	44	
394	20	2/20	18	40			24	56	
395	20	2/20	18	64			32	44	
396	20	2/20	18	56	28	40	32		
397	20	2/20	18	64	24	40	32		
398	20	2/20	18	100	40	64	32		
399	21	2/21	18	32			64	44	

* SPECIAL GEAR.

DECIMAL EQUIVALENTS OF PARTS OF AN INCH.

1/64 . .01563	21/64 . .32813	45/64 . .70313
1/32 03125	11/32 . . .34375	23/32 . . .71875
3/64 . .04688	23/64 . .35938	47/64 . .73438
1-16 0625	**3-8** 375	**3-4** 75
5/64 . .07813	25/64 . .39063	49/64 . .76563
3/32 09375	13/32 . . .40625	25/32 . . .78125
7/64 . .10938	27/64 . .42188	51/64 . .79688
1-8 125	**7-16** 4375	**13-16** 8125
9/64 . .14063	29/64 . .45313	53/64 . .82813
5/32 15625	15/32 . . .46875	27/32 . . .84375
11/64 . .17188	31/64 . .48438	55/64 . .85938
3-16 1875	**1-2** 5	**7-8** 875
13/64 . .20313	33/64 . .51563	57/64 . .89063
7/32 21875	17/32 . . .53125	29/32 . . .90625
15/64 . .23438	35/64 . .54688	59/64 . .92188
1-4 25	**9-16** 5625	**15-16** 9375
17/64 . .26563	37/64 . .57813	61/64 . .95313
9/32 28125	19/32 . . .59375	31/32 . . .96875
19/64 . .29688	39/64 . .60938	63/64 . .98438
5-16 3125	**5-8** 625	**1** 1.00000
	41/64 . .64063	
	21/32 . . .65625	
	43/64 . .67188	
	11-16 6875	